

CITY OF SAN ANTONIO



APPROVED BY CITY COUNCIL
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SECTION ONE: A FOUNDATION FOR THE FUTURE

The Downtown Transportation Study (DTS) was commissioned by the City of San Antonio in support of Mayor Julián Castro's vision for transportation and lifestyle in the Downtown as outlined in SA 2020. As the Mayor stated, "The next months, the next years are about doing... about putting action to the ink on paper." The community indicated transportation needs to be improved first and an additional priority is improving Downtown. The DTS identifies how to create what the community has envisioned. The project was managed by the Capital Improvements Management Services (CIMS) with participation from Center City Development Office (CCDO).

THE OBJECTIVES OF THE SAN ANTONIO DOWNTOWN TRANSPORTATION STUDY

In order to accomplish what the community and the Mayor have envisioned in SA 2020, the following objectives have been identified:

- Advance the goals for Downtown established in SA 2020 and the Strategic Framework Plan
- Develop transportation improvements that support a sustainable, vibrant, world-class Downtown
- Develop street improvement guidance that keeps pace with an ever-evolving Downtown
- Recommend near-term capital improvements to catalyze growth
- Enhance San Antonio's unparalleled hospitality trade



Source: SA 2020 Final Report, March 2011

The objectives can be achieved through implementing improvements that address the following:

- Transform Downtown
- Encourage economic development
- Improve access to/from Downtown
- Improve circulation within Downtown and connections to adjacent areas, and the River Walk
- Provide multi-modal choices



“The next months, the next years are about doing... about putting action to the ink on paper.”

MAYOR JULIÁN CASTRO
ON THE SA 2020 INITIATIVE

THE PUBLIC INVOLVEMENT PROCESS

The public involvement process communicated key messages throughout the project. At start-up, the community was introduced to the project, its objectives, scope and study area. A project website was created to allow for continuous access to project information and to provide a portal for receiving public comment. Stakeholders were identified, contacted and, in some cases, met with directly to present project ideas and information. In addition to the public, City staff was apprised through three substantive meetings including participation in workshop exercises, and the Steering Committee was kept abreast through meetings, monthly updates and via access to a password-protected section of the project website. In addition, monthly presentations were given to the Infrastructure and Growth Committee comprised of five members of the City Council. The Infrastructure and Growth Committee has responsibility for oversight of policies related to transportation, roads, sidewalks, infrastructure, and VIA Transit. Following is a summary of the project meetings. Detailed reports can be found in the Appendices.

PUBLIC MEETING #1 – “3 PROJECTS, 1 MEETING”

This public meeting was held early in the project timeline, on November 29, 2011 with HemisFair Park Area Redevelopment Corporation and VIA Metropolitan Transit at the Central Library Gallery and Auditorium. The DTS project team introduced the project and asked for preliminary community input on needed street improvements. An open house format allowed for attendees to obtain more information and have specific questions answered. Comment cards, the project website address, and the public information telephone number were provided.

STAKEHOLDER MEETINGS

Stakeholder meetings occurred throughout the process with a concentration of them conducted in conjunction with the City’s HemisFair Complete Streets effort. Stakeholders were provided with a presentation of the project, contact information as well as the project website address. Additional stakeholder meetings were conducted via formal presentations, such as with the Downtown Alliance, the VIA Board of Directors, and the City’s Infrastructure & Growth Committee. Additional meetings were held with VIA staff, the Cultural Zone, and the City departments of Public Works, Planning, and the Office of Environmental Policy.

PUBLIC MEETING #2 – JOINT PUBLIC MEETING WITH HEMISFAIR COMPLETE STREETS

This meeting was held at the Institute of Texan Cultures on March 6, 2012. The DTS project team presented alternative concepts for several downtown streets including the five 2012 Bond Downtown Street projects, placemaking opportunities, and the initial list of recommended street types with overlays. An open house format allowed for attendees to obtain more information and have specific questions answered. Comment cards, the project website address, and the public information telephone number were provided. Additionally, the public was invited to participate in an online survey, developed in coordination with the public engagement effort, and advertised at the public meeting.

PUBLIC MEETING #3 – FINAL PUBLIC MEETING

The final public meeting was held at the Central Library Gallery and Auditorium on April 30, 2012. The DTS project team presented the final concepts for downtown street improvements including the five 2012 Bond Downtown Street projects, placemaking opportunities, and the initially approved list of street types and overlays. An open house format allowed for attendees to obtain more information and have specific questions answered. Comment cards, the project website address, and the public information telephone number were provided.

WHAT IS DIFFERENT ABOUT THIS STUDY?

A CONTEXT SENSITIVE TRANSPORTATION PLAN

The San Antonio Downtown Transportation Plan recommends improvements that are context sensitive. A context sensitive transportation improvement is one that complements and supports the surrounding land uses, visually, functionally, and in its scale. A context sensitive transportation improvement preserves, enhances or incorporates in its design what the community feels is important and values.

SUPPORTING A SUSTAINABLE FUTURE

Building and securing Downtown’s long-term importance for businesses, visitors, government, and residents requires an effective multimodal transportation system. The community vision established through the SA 2020 process sets broad goals for the City, many of which will have impacts on the transportation system and the public right-of-way in San Antonio. Through the recommendations in Section 3, the DTS identifies specific capital improvements that address current limitations in the transportation system and position Downtown for specific investment and development opportunities. The street design guidance in Section 4 complements the recommendations by putting in place a system for gradual improvement in Downtown streets that will be made as funds become available and as investments in new development are made.

THE DTS INCORPORATES THE FOLLOWING KEY IDEAS:

- Downtown streets should be designed and managed as multifunctional spaces that support social and economic activity as well as moving traffic.
- Streets will be improved so that walking and cycling are increasingly attractive and increasingly practical ways to get around.
- Accessibility – people’s ability to easily reach their destinations will be a focus in order to make walk, bike and drive trips increasingly convenient.
- Major development and re-use investments should be coordinated and implemented with DTS project recommendations, street design guidance, and accessibility priorities.
- Taken together, the impact of the DTS will be to strengthen the Downtown’s transportation system in accommodating growth and improvements in order to sustain its central role in Downtown San Antonio.



Community involvement in the DTS was facilitated in an open house format; collaboration involved teams from related initiatives.

WHAT IS DIFFERENT ABOUT THIS STUDY? CONTINUED

Efficiency as the New Capacity

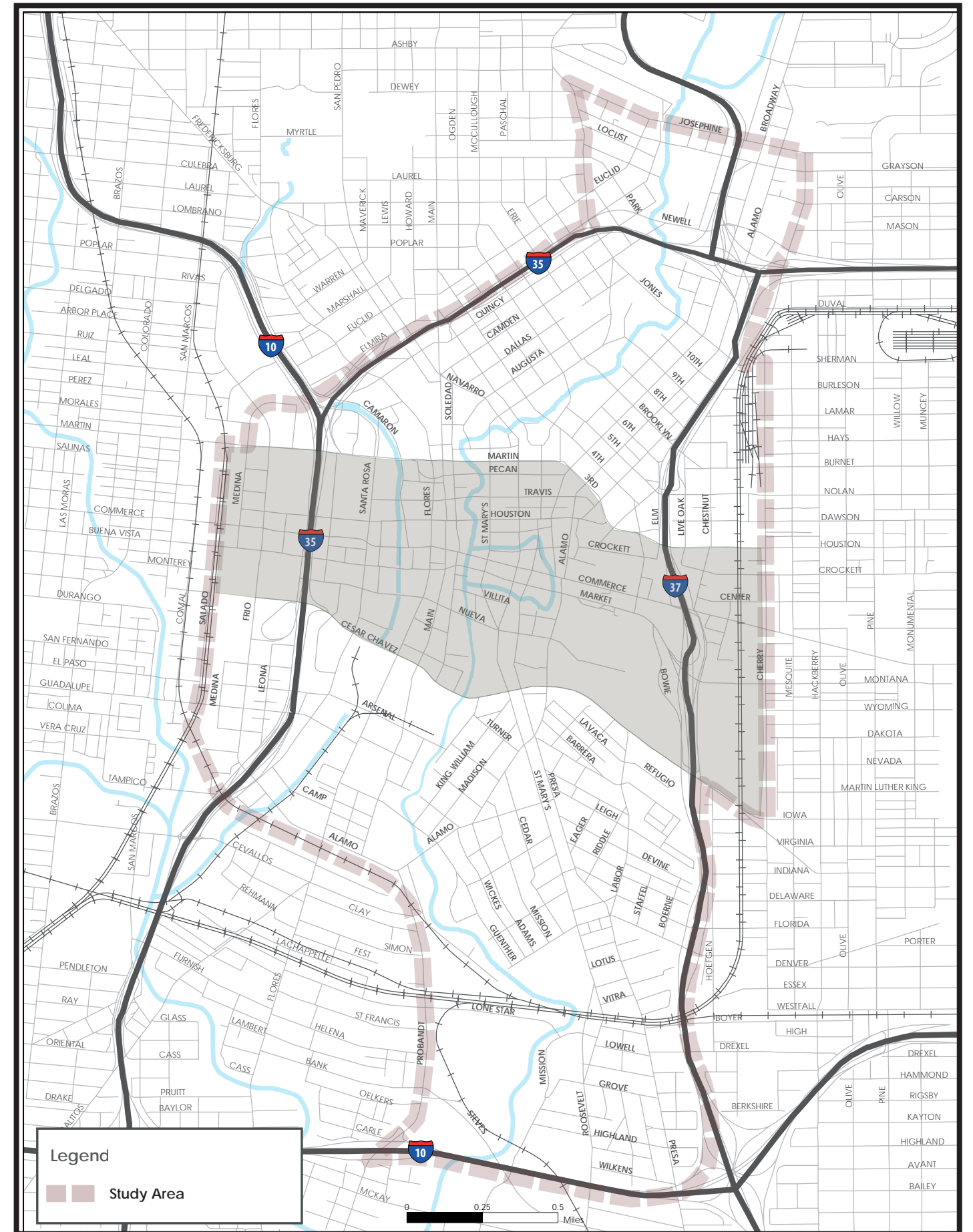
As shown in **Figure 1-1**, the City of San Antonio's downtown core covers a moderate sized 1.2 square miles with less than 25 centerline miles of roadways, excluding interstate highways. The overall study area is comprised of less than 5 square miles containing just over 67 centerline miles of roadway, excluding interstate highways. Comparably, other cities have larger downtown core geographic areas, such as Chicago at 8 square miles, Philadelphia at 2.07 square miles, Atlanta at 4 square miles, and New York City's Borough of Manhattan at just under 23 square miles. In addition to its moderate geographic size, San Antonio's downtown core has a limited street network at less than 25 centerline miles of roadway. Like many downtowns, capacity to accommodate increases in residents and workers via housing and vacant office space is available. However, there is not likely to be a similar level of available capacity to accommodate additional trips or vehicles on the downtown roadways. With limited opportunities to widen roadways or construct new ones, other methods must

be utilized to address increases in vehicle trips in the future.

Some of these methods consist of increasing the efficiency of the existing transportation system in Downtown, especially in the identified growth areas. Improving signal timing to maximize progression along primary arterials is a traditional method of improving efficiency for drivers. However, in downtowns, with closely-spaced intersections forming grid networks, maximizing the progression of major roadways can leave side-streets with excessive delays. A balanced approach should be applied with regard to signal timing and progression so that delays on side-streets are not excessive.

Additional methods include managing the increase in travel demand associated with growth by providing choices of alternative modes of transportation. Complete Streets initiatives will encourage transit use, improve walkability and encourage bike use. If existing and new trips are distributed among alternative modes of transportation, the demand on the street network will be lessened and the roadway system will function more efficiently.

Downtown Transportation Study Study Area, Figure 1-1



GUIDANCE FOR FUTURE TRANSPORTATION AND LAND USE PROJECTS

As described above, the Downtown Transportation Study is intended to guide decision-making for long- and short-range transportation-oriented and complementary projects in Downtown. These improvements will, in turn, support the Downtown's transformation into a world-class destination, serving visitors and locals alike. To do that, the transportation system needs to be comfortable for the full range of users while providing efficient movement from one place to another. This study identifies short-term improvements in the form of projects expected to be funded as part of the 2012 Bond Program. These will resolve key transportation issues in the Downtown area while transforming the area and serving other users.

Beyond these short-term priorities, the study examines Downtown's existing transportation system to review how the system works today and how it could be improved. Improvements focus on the streets on which people travel, from the building front to the sidewalk to the street itself. The study identifies long-range transportation improvement projects to support the further evolution of Downtown streets, addressing their design and operation.



Crockett Street



HemisFair Park



Market Street

Finally, the study complements these specific projects with a range of flexible guidelines for street improvements. Following analysis of street characteristics and functions, a customized set of street types was developed and each street in the Downtown was assigned a "type." The street types are flexible to allow developers, the City, residents, and other interested parties to be sensitive to the wide range of existing roadway conditions found Downtown, as well as the range of conditions adjacent to the roadways. The street types demonstrate how pedestrians, bicyclists, passenger autos, trucks, and transit vehicles can share roadways, while creating inviting places for people to explore and enjoy visits to the Downtown and travel throughout the city.

SETTING THE STAGE: THE CONTEXT OF SAN ANTONIO'S DOWNTOWN

San Antonio is especially known for its historic character. Successful streets respond to and contribute to the places they traverse. A leafy, narrow street that is appropriate for a residential area may not be appropriate in a more commercial area with more pedestrians and transit riders. A context-sensitive street will be designed in a way that responds to community, property-owner, business-owner, and other user and stakeholder input. This input will need to be considered early in the process of street design. A context-sensitive street will also be responsive to the physical setting in which it is found, including aesthetic, environmental, scenic, historic, and natural resource values. A street with historic buildings on both sides and mature trees on both private property and the public right-of-way will require a different treatment from one with more modern buildings that is adjacent to a creek or river.

The presence of a variety of contexts in the Downtown study area, from historic single-family residential neighborhoods like King William and Lavaca to the intense streets of the Downtown Core like Commerce and Market Streets, means that each street may require different treatment but should strive to safely accommodate all appropriate users, as established by San Antonio's Complete Streets policy. The types of users may vary from one street, neighborhood, or community to the next. As a result, there is no prescriptive design standard or single approach to creating great places with great streets.

Context sensitive design is increasingly becoming a standard way of doing business. The US Federal Highway Administration (FHWA), the Institute of Transportation Engineers (ITE), the American Association of State Highway and Transportation Officials (AASHTO) and many city transportation departments offer guidance on the process and design of context sensitive streets. This practice is supportive of complete streets and placemaking, which are also endorsed by the DTS.



Historic N. Presa St. Bridge, c. 1925



Historic San Antonio: Houston Street

DOWNTOWN DISTRICTS AND LAND USES—AN OVERVIEW

As shown in **Figure 1-2**, the land use context in Downtown San Antonio is primarily mixed use with a large residential area to the south, consisting of the Lavaca neighborhood and the adjacent King William neighborhood. The area shown in blue, HemisFair Park, is the largest potential redevelopment parcel Downtown and is currently slated for Convention Center renovation and new mixed use developments, as proposed by a 2011 Master Plan. There are a few high rise buildings of twenty stories or more in Downtown, including commercial office buildings, hotels that abut the River Walk, and a new apartment building. Much of the remainder of Downtown is low rise development with a mix of uses, including offices, retail, restaurants, hotels, hospitals and medical institutions, schools, churches and religious institutions. Most of the density is focused on the gridded streets between Martin and Market Streets and between Santa Rosa and Bowie Streets, so the urbanized downtown is fairly compact and walkable in about twenty minutes. The River Walk passes under this area in a loop, placing nearly all of the downtown destinations within an eight-by-twelve block area.

The city's historic districts, shown for the Downtown in **Figure 1-3**, have special significance for native Texans and especially those native to San Antonio. Alamo Plaza and Main/Military Plaza commemorate key battle sites in the Texas War for Independence, but there are a number of other historic sites and buildings around the major plazas. Most of these are also within walking distance and connected by the historic downtown trolley, however many tourists probably do not venture beyond the imposing freeways to visit Cattleman Square to the west and St. Paul Square to the east. The plazas, churches, historic houses and old railroad stations describe a compelling history that could be thoughtfully related through on-street interpretation. These historic uses and their relationship to the River are the context for the street pattern discussed in the next section.

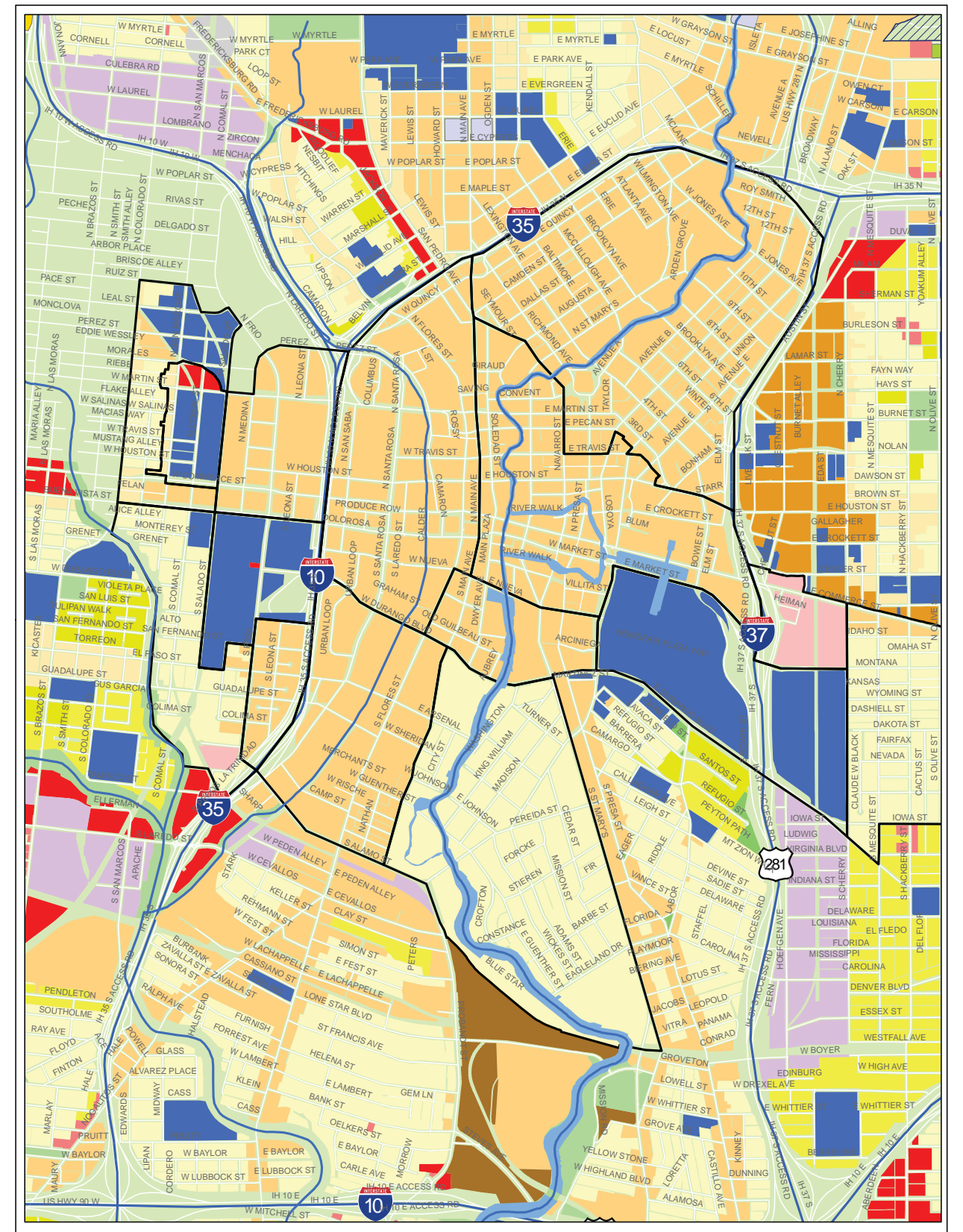


Casa Navarro Historic Site



King William Historic District

Figure 1-2
Future Land Use Plan -
Downtown



City of San Antonio
Future Land Use Plan

0 1,000 2,000 3,000 4,000 Feet

City of San Antonio
Planning and Development
Services Center
1901 S. Alamo
San Antonio, TX 78204

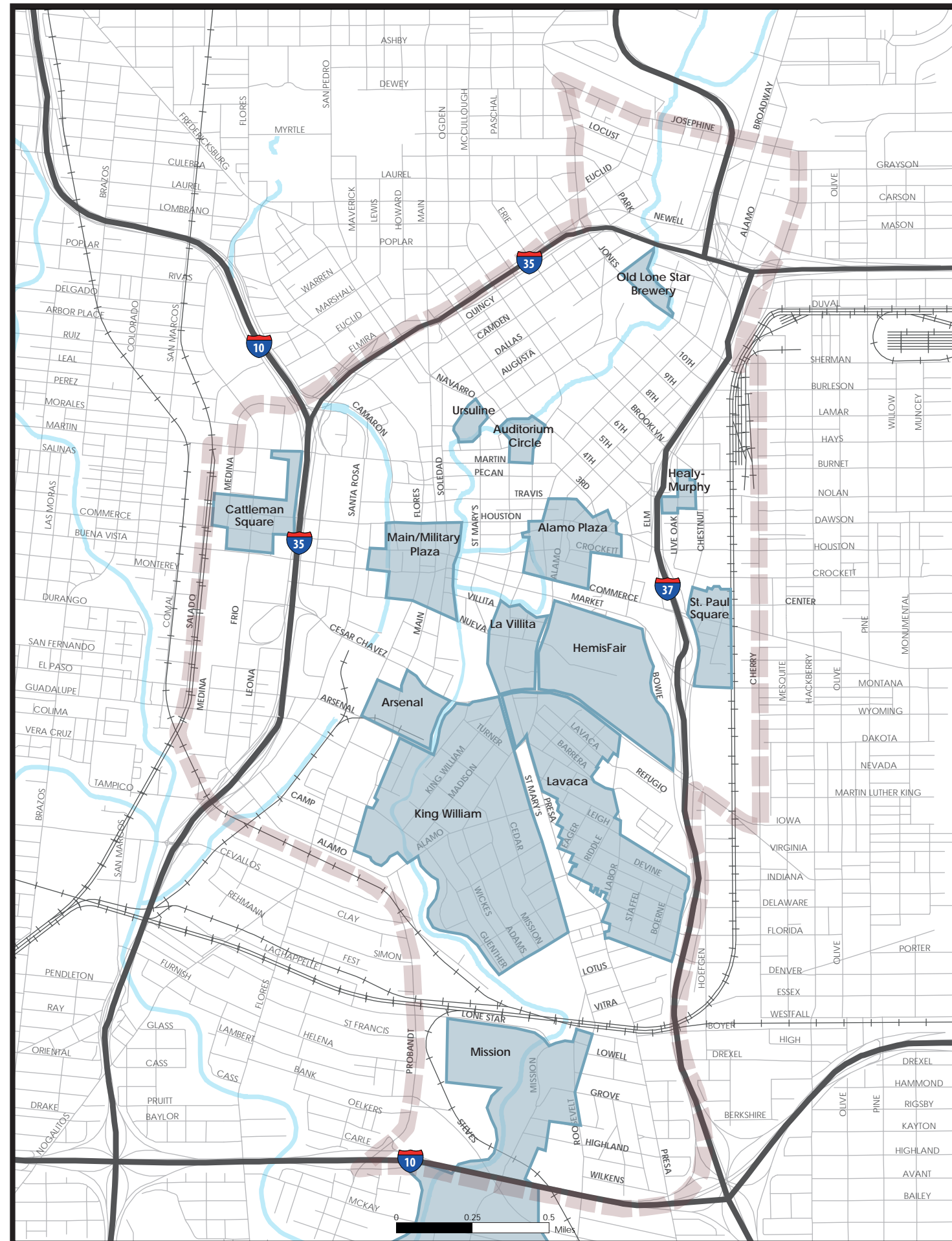


The Alamo



Historic King William

The city's historic districts have special significance for native Texans and especially those native to San Antonio.



**Figure 1-3
Map of Downtown
Historic Districts**

GETTING AROUND IN DOWNTOWN SAN ANTONIO TODAY

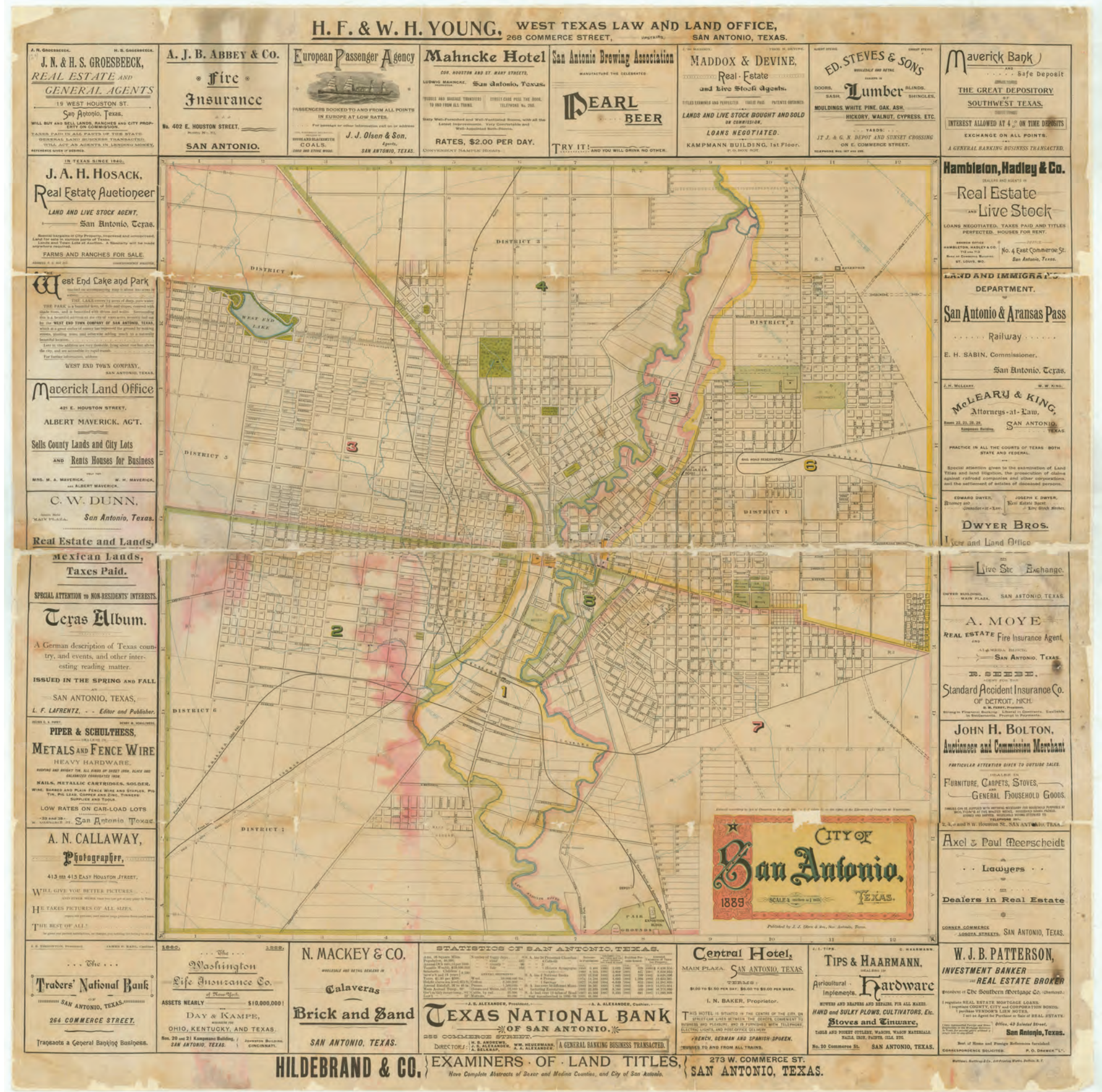
SAN ANTONIO'S HISTORIC ARMATURE— A BRIEF HISTORY OF THE DOWNTOWN STREET PATTERN

Traveling along many Downtown San Antonio streets, even the casual traveler may observe that streets vary widely in width and “meander.” Instead of one standard grid layout, streets in Downtown San Antonio follow numerous orientations. The Downtown Transportation Study team observed early on that San Antonio streets are notable for their exceptions to standard street widths and configurations. Downtown rights-of-way vary widely, from less than 30 feet (Crockett Street) to over 100 feet (César Chávez Blvd.), with considerable internal variation as streets traverse blocks. This extreme variability poses a challenge for contextual planning and updating Downtown streets to meet the demands of multi-modal transportation.

San Antonio streets came into existence as historical exploration, settlement and trade routes, as is the case with other western US cities. The first of these, El Camino Real (aka the El Camino Real de los Tejas, or the Old San Antonio Road), was not actually a single road but a network of trails followed by Spanish explorers and missionaries. Other early routes of exploration, settlement, trade and commerce included the Upper Presidio Road, the Lower Presidio Road, the Pita Trail, the Pinta Trail, the Camino de la Bahía, and the various routes of the Laredo Road. By 1889, within the 36-mile city boundary the downtown streets had filled out, essentially matching their configuration today with a few missing exceptions, including Durango/César Chávez Blvd.

Figure 1-4
Map of San Antonio
c. 1889

Source: <https://www.tsl.state.tx.us/arc/maps/images/map0124.jpg>



SAN ANTONIO'S HISTORIC ARMATURE—A BRIEF HISTORY OF THE DOWNTOWN STREET PATTERN

CONTINUED

The 1889 map clearly shows a street hierarchy in place during the late 19th century, consisting of various classes of streets, each of which had predetermined widths, functions and materials. At the top of the hierarchy are major connectors that connect the center city with regional towns. These include rail/street corridors such as Fredericksburg/Flores, Alamo/Avenue C (now Broadway) and San Pedro/Main Avenue. A few streets follow creeks or acequias (Spanish irrigation ditches) including Labor Street, North Flores and Garden (now South St. Mary's). The San Antonio River and San Pedro Creek are defining boundaries for Downtown and the neighborhood street grids which complete the system.

Neighborhood grids are fairly symmetrical west of San Pedro Creek and east of the main rail line (Galveston, Harrisburg & San Antonio Rail). North and south of Downtown, through the present-day neighborhoods of River North and King William, the grids tilt diagonally in response to the general direction of the River and the original suertes/solars that were oriented to the river. Though very little is left of the old acequia system, the acequias, creeks and especially the River were major shapers of the street anomalies experienced today. **Figure 1-5** shows a map of the original acequia system.

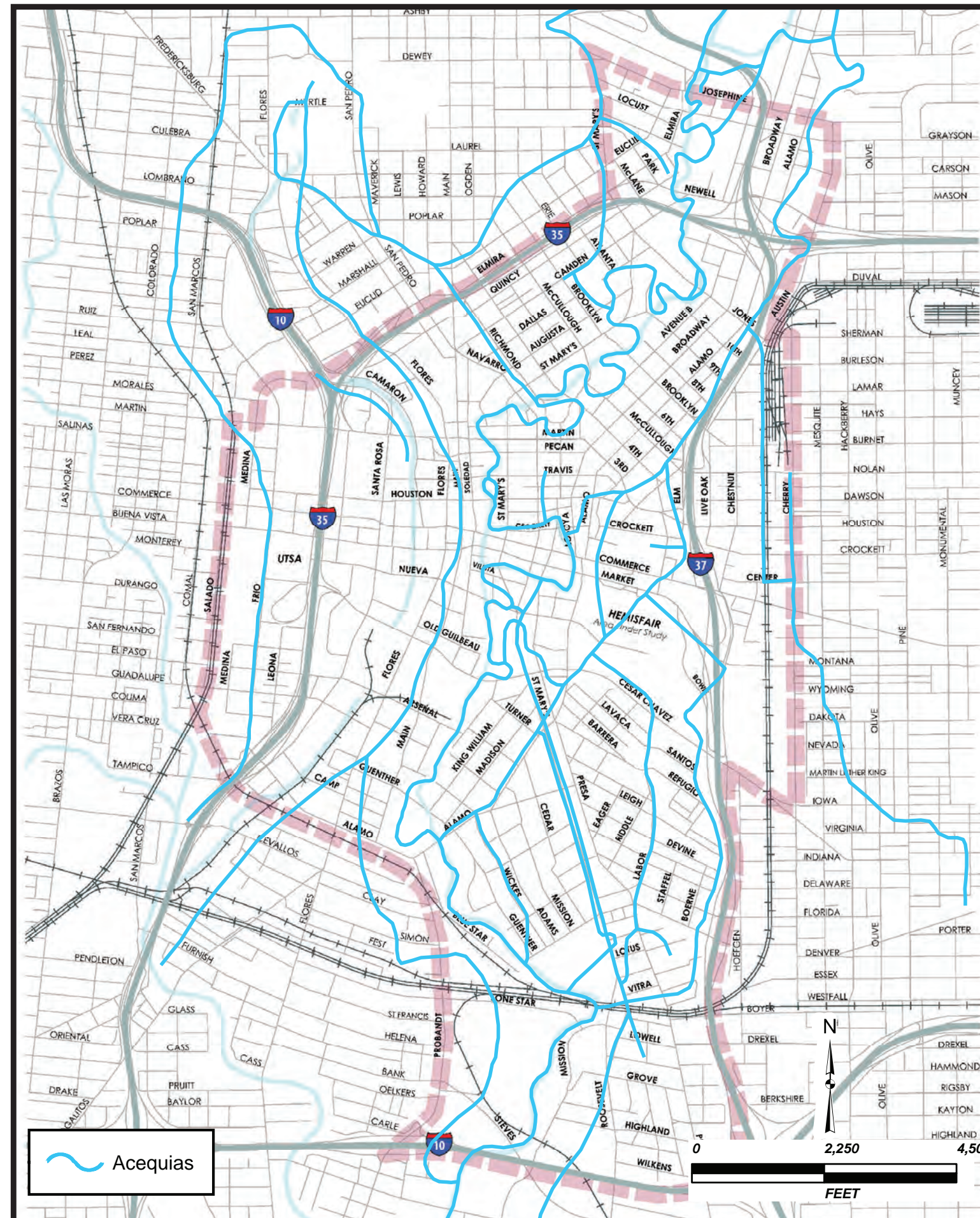


Figure 1-5
Map of Acequia System
The Colonial-era acequia system, creeks, and the San Antonio River influenced the street anomalies experienced today.

A VARIETY OF TRANSPORTATION CHOICES

San Antonio's River Walk

One of San Antonio's most popular attractions is the River Walk which winds along the San Antonio River bordered by hotels, shops and restaurants. The River Walk was designed by architect Robert H.H. Hugman to reflect San Antonio's historic charm through his unique designs for bridges, stairways and walkways and the incorporation of lush landscaping. Hugman's unique vision included shops and restaurants along the river's banks and river barges similar to the gondolas of Venice.

The section of the River Walk most visited by tourists is three miles long and winds through Downtown. The heart of the River Walk, referred to as the Great Bend, is shaped like a sideways horseshoe. More recently, the City and San Antonio River Authority with Bexar County completed a 4-mile extension along the northern section, referred to as the Museum Reach and opened 2.25 miles

of Phases 1 and 2 of a south extension, called the Mission Reach. Work is continuing on the remaining 5.75 miles of Mission Reach which will total 8 miles when complete. Portions of the River Walk are open to bicyclists and kayakers.

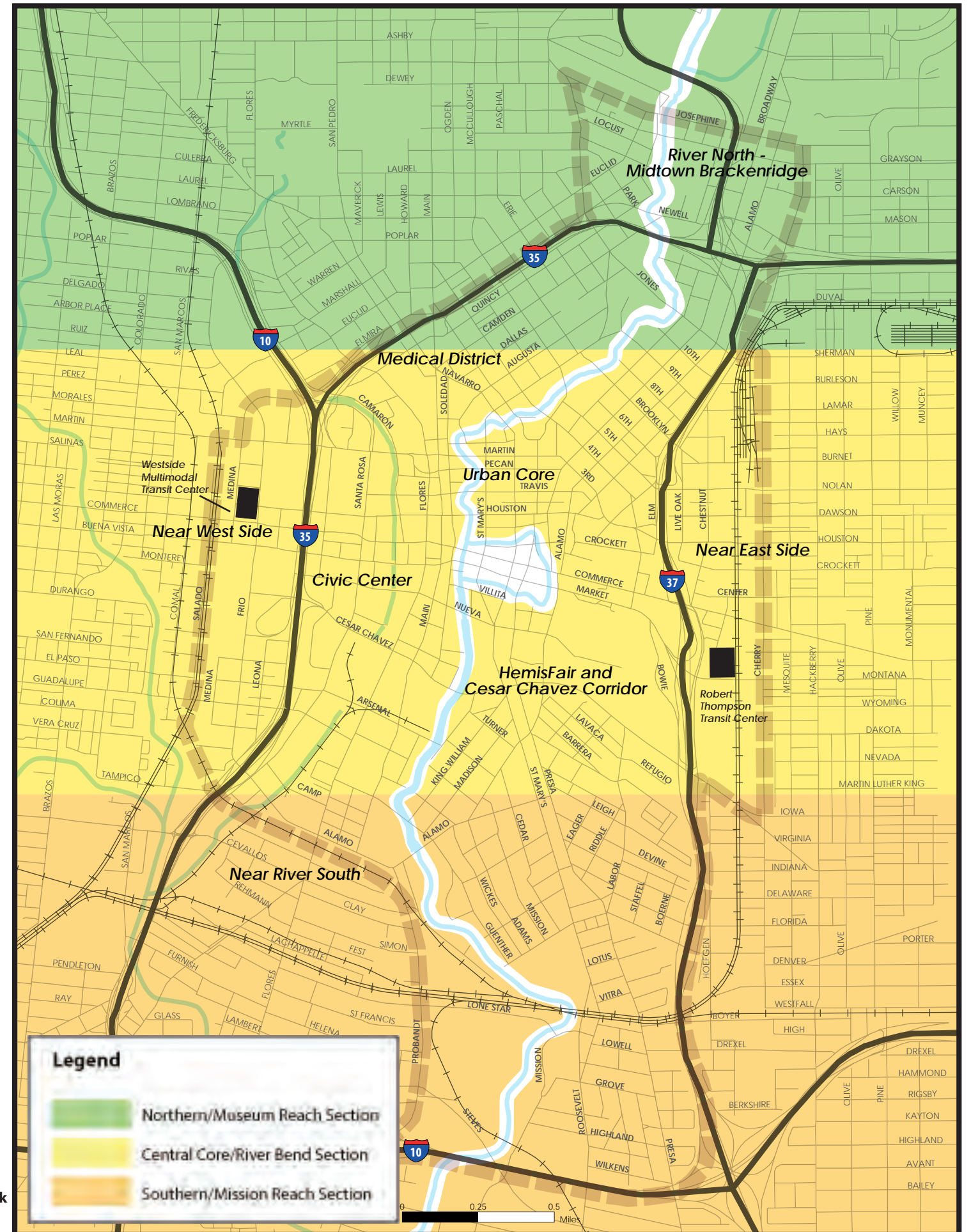
The River Walk is one of the Country's greatest pieces of urban design –it is fundamentally a travelway that attracts millions of visitors annually to come and stroll. A key challenge in extending Downtown's vitality is to expand upon that success, in part by encouraging people to stroll throughout the Downtown and visit other destinations on the street level.



The iconic take-away image of San Antonio – visitors enjoying a relaxed river barge tour.



Figure 1-6 Sections of the River Walk



Pedestrian Facilities

As discussed above, the current street network can make a stroll a difficult proposition for people who are not familiar with Downtown. In addition, area streets are busy with vehicle traffic; and narrow sidewalks place pedestrians uncomfortably close to that traffic in some places. The sidewalks themselves can be difficult to navigate, particularly for people with limited mobility. These issues are being addressed, but in the short-term these barriers will continue to exist in some places.

An online survey was advertised as part of the second public meeting for the project. The online survey asked a series of questions seeking the public's input on key features that were most important for improving Downtown streets by type as well as opinions on the best walking and cycling streets Downtown today.

The Top Walking Streets / Paths in Downtown

Based on results from the online survey, San Antonians currently consider Houston Street to be the best walking street Downtown today. Houston Street is an example of a Complete Street with its wide sidewalks featuring street cafes, benches, landscaping and streetscaping elements. Traffic operates at slow speeds due to a single lane in each direction and transit users have access to the VIA Trolley. Houston Street, a signed bike route, also appeals to bicyclists with its lower traffic speeds and easy access to its B-Cycle Station. Alamo Street was cited as the second best walking street and the best street for cycling in the online survey.



Houston Street, rated the best walking street in Downtown today.

WHAT ARE THE BEST STREETS FOR WALKING & BIKING?

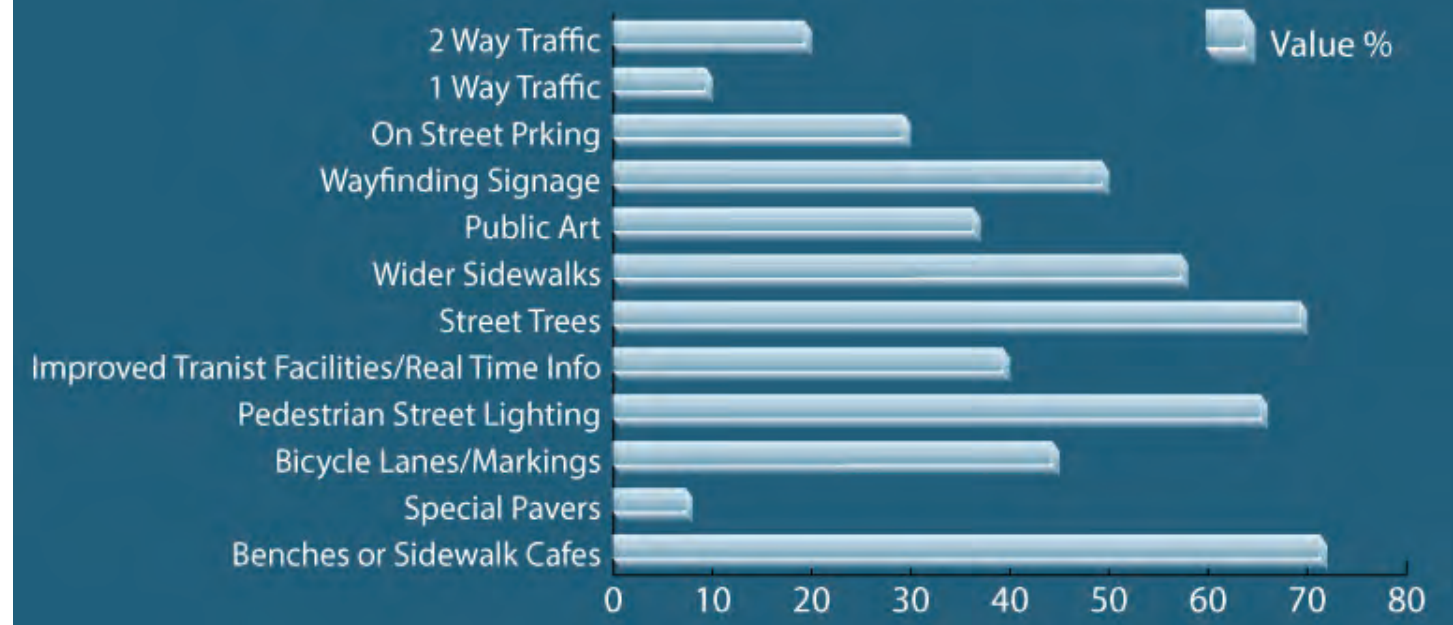
Walking	Houston
	Alamo
	Commerce
Biking	Alamo
	St. Mary's
	Broadway

According to Public Meeting 2 Online Survey Results



Alamo Street (just north of César Chávez Boulevard, looking north), has been cited as the second best walking street and the best for cycling.

Most Important Elements for Downtown Activity Streets



What needs improvement, from the Community's perspective?

The results of the online survey showed that the **top five elements** desired for a Downtown Activity street were:

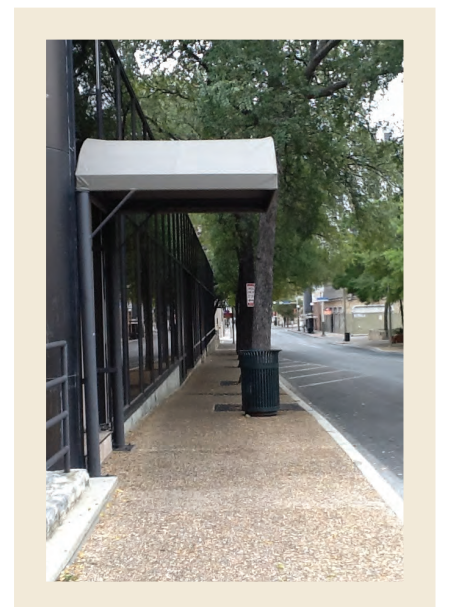
- SEATING ■ STREET TREES ■ LIGHTING
- WIDER SIDEWALKS ■ WAYFINDING SIGNAGE

Downtown Lifestyle streets showed similar results except bike lanes and public plazas were selected instead of wider sidewalks and wayfinding signage. Downtown Essential streets showed a shift towards transit and autos with a desire for improved transit facilities and signals timed for vehicles. Surprisingly, respondents selected the need for pedestrian lighting in all five categories of street types.

Barriers to Walking

There are a number of barriers to walking that, if removed, will encourage pedestrian activity. Based on the results of the online survey, inadequate lighting is a concern for pedestrians. Another major barrier is inadequate shade along sidewalks, as demonstrated by the survey respondents' selection of "street trees." With San Antonio's climate, provision of shade through trees, canopies or other structures, will make walking Downtown much more attractive.

Additional barriers to walking include discontinuous sidewalks and streets which require pedestrians to find alternate, less direct routes to their destinations. Gates, fences and other physical barriers limiting pedestrian access should be excluded wherever possible. The condition of the walkways and crossings also affects the users' experience. In particular, compliance with Americans with Disabilities Act (ADA) will remove barriers for disabled users. Any future improvement projects implemented must comply with ADA which includes modifying or installing curb ramps, removing obstacles within the walkway and providing the required crossing elements at intersections.



St. Mary's sidewalk



B-Cycle Station at the Pearl

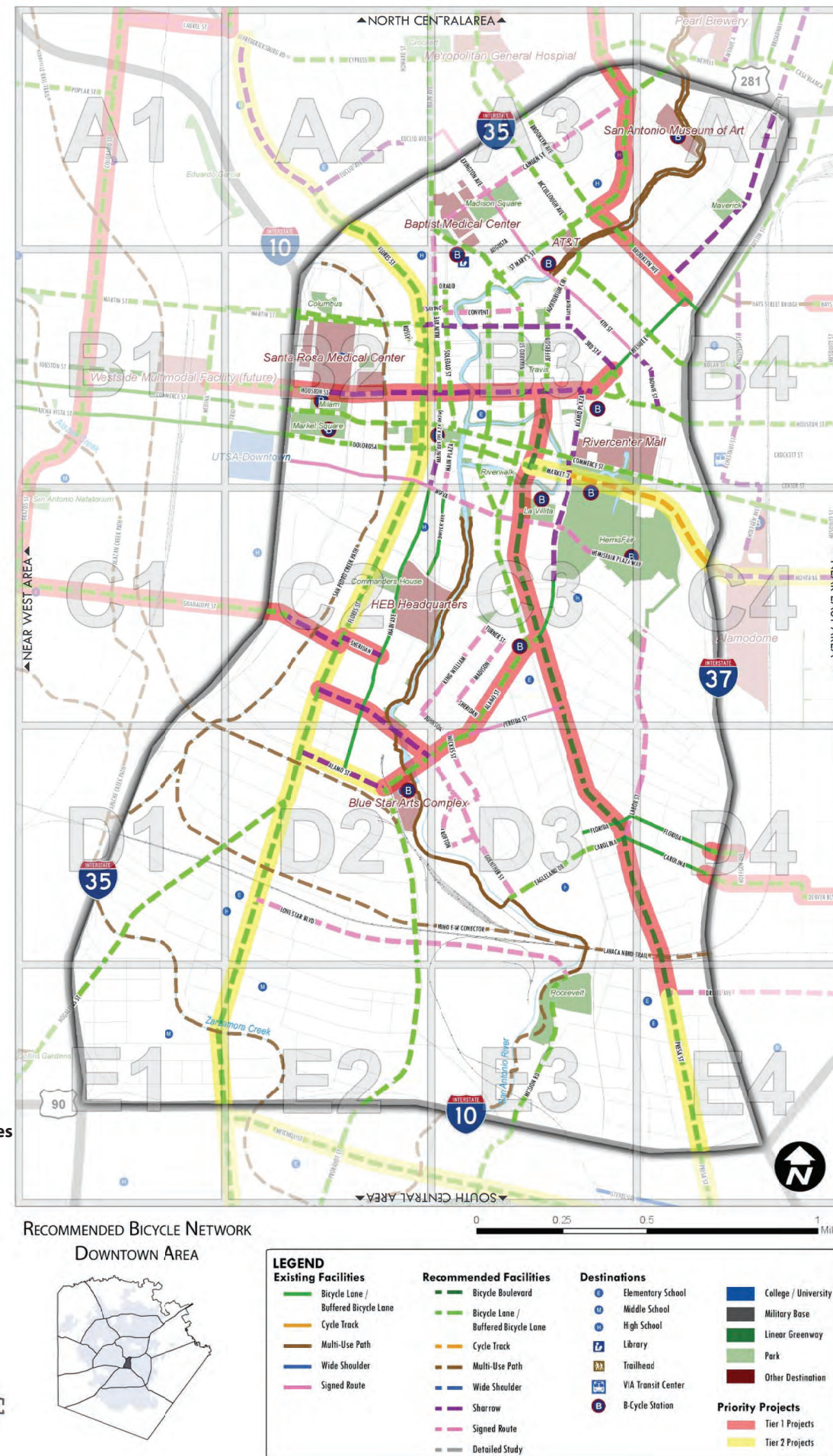


Avenue B Bike Path adjacent to Brackenridge Park
Source: Julia Diana

Bikeways and B-Cycles

San Antonio's current bike plan shows existing bike facilities and future plans for adding bike facilities throughout Downtown. **Figure 1-7** shows the City of San Antonio Bike Plan 2011 + Implementation Strategy for the Downtown network referred to as the "City's Bike Plan" in this report. Bike projects are identified as Tier 1 or Tier 2 projects. San Antonio currently has a bike-sharing program known as "B-Cycle." San Antonio is now ranked as the second-busiest B-Cycle city in the nation. B-Cycle riders log an average of more than 328 miles per day on 230 bicycles in circulation. The 23 current B-Cycle stations are indicated on the City Bike Plan. Five to seven additional stations are planned later this year. The B-Cycle program is viewed as a huge success with an average ride time of 65 minutes and a total of 123,675 miles logged in one year. Most recently, San Antonio placed 47th on the list of 50 Most Bike Friendly Cities by *Bicycling Magazine*.

Figure 1-7
Existing Bike Facilities
+ Recommended Facilities



Public Transportation

VIA Metropolitan Transit provides extensive bus service to Downtown, primarily the Downtown Core area. A significant portion of the Downtown service utilizes Commerce, Market, St. Mary's and Navarro Streets with major transfer points located at intersections of east-west and north-south streets. VIA's future plans call for relocating much of the Downtown service off of Commerce/Market and St. Mary's/Navarro with more transfer locations placed on alternate streets. A bus circulator will traverse Commerce and Market with connections to the future Westside Multimodal Transit Center and the Robert Thompson Transit Center on the east side. The bus circulator will have six stop locations on Commerce and Market Streets each and service will be provided using higher capacity articulated VIA Primo Bus Rapid Transit (BRT) vehicles. Future service into Downtown will include VIA Primo BRT, which brings riders into the Westside Multimodal Transit Center from the northeast Medical Center via Fredericksburg Road and plans to expand VIA's Park and Ride service.

Automobile Circulation

San Antonio's Downtown road network consists of five classifications of streets based on the City of San Antonio Major Thoroughfare Plan. The five classifications are Primary Arterial Type A, Primary Arterial Type B, Arterial Type C, Secondary Arterial Type A and Secondary Arterial Type B. As mentioned previously, the road network can be confusing for drivers due to the changes in orientation from the standard east-west/north-south grid network. Many of San Antonio's roadways originated from trade routes and trails which explains the changes in orientation and the wide range of existing pavement widths and rights-of-way. The changes in orientation also create intersections with skewed angles and more than four legs adding to driver's difficulty with navigating Downtown. Street names change several times along a number of routes in the downtown area, also contributing to drivers' confusion.

Downtown is bounded by interstate highways with ramps providing access from the surface street network. Major exit/entrance points via interstate highways include Houston, Commerce, Market, César Chávez Boulevard, Brooklyn/McCullough, Frio/Martin, and South Alamo. Travel patterns indicate that many drivers use César Chávez Boulevard as an east-west connector. Major north-south routes traversing Downtown include Frio, Santa Rosa, Flores, St. Mary's/Navarro, Broadway, and Alamo. There are a number of one-way streets in Downtown San Antonio, including Commerce/Market Streets, St. Mary's/Navarro Streets, Main Avenue/Soledad (north of Commerce), Losoya/Alamo Streets, Camaron and San Saba.

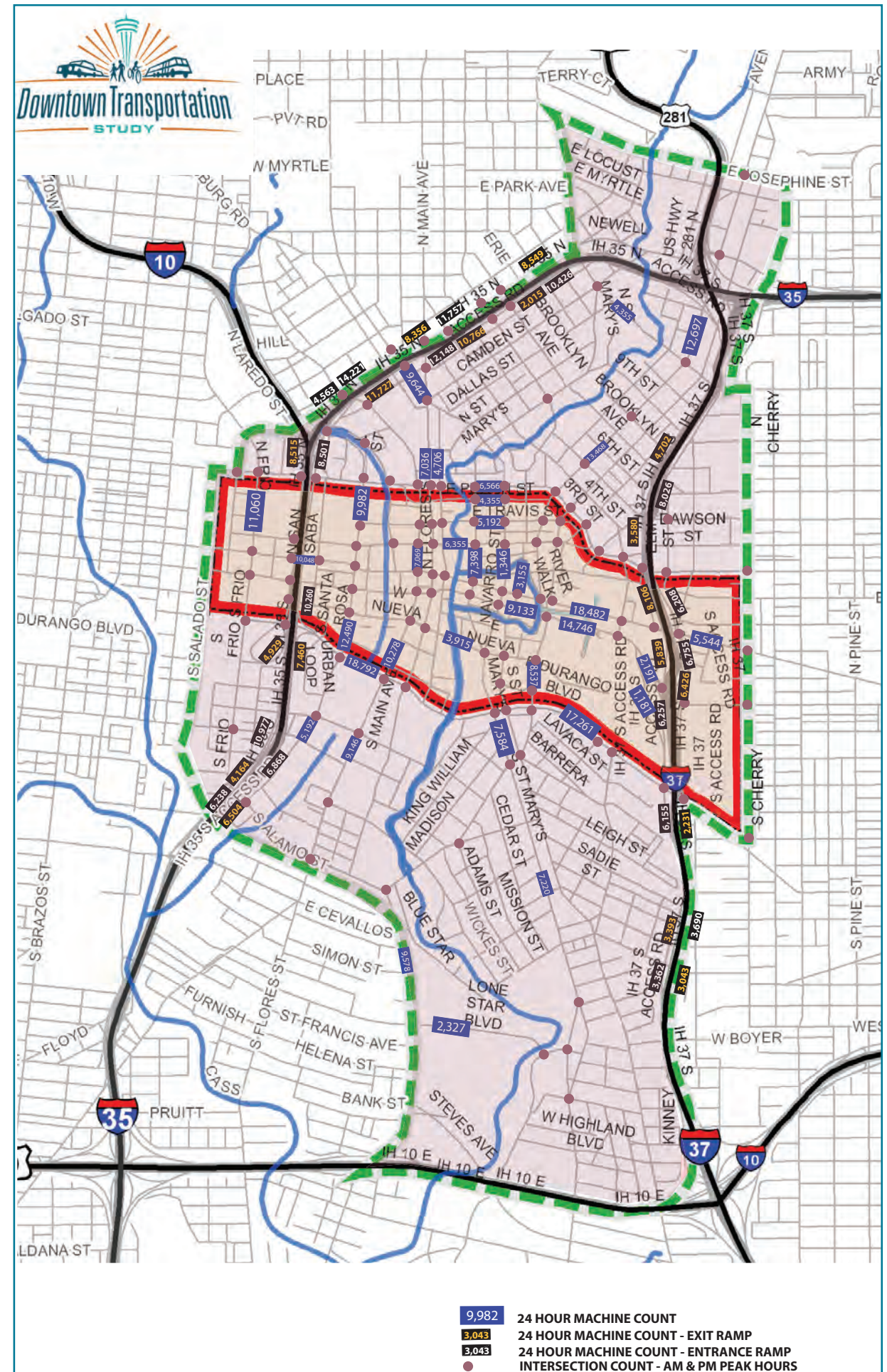
EXISTING TRAFFIC CONDITIONS

Prior to developing and evaluating transportation improvements, the Existing Condition of the transportation system within the study area must first be established. The existing traffic conditions are based on current volume levels and intersection operations. Therefore, a comprehensive data collection effort and analysis was conducted as part of the Downtown Transportation Study.

Data Collection

Daily traffic volumes were collected along 73 ramps or roadways. Turning movement counts were conducted at 134 intersections during the weekday AM and PM peak periods. Saturday data was collected at several locations early on in the process in order to establish that the weekday peak hour exceeded the Saturday peak. Special events were not considered since they are unique and will require specialized event traffic planning. Daily traffic volumes and locations of intersection counts are shown in **Figure 1-8**. Detailed information is included in the Appendices.

Figure 1-8
Traffic Volume Data Map





Interstate 37 - North of Commerce



VIA bus on Frio at UTSA

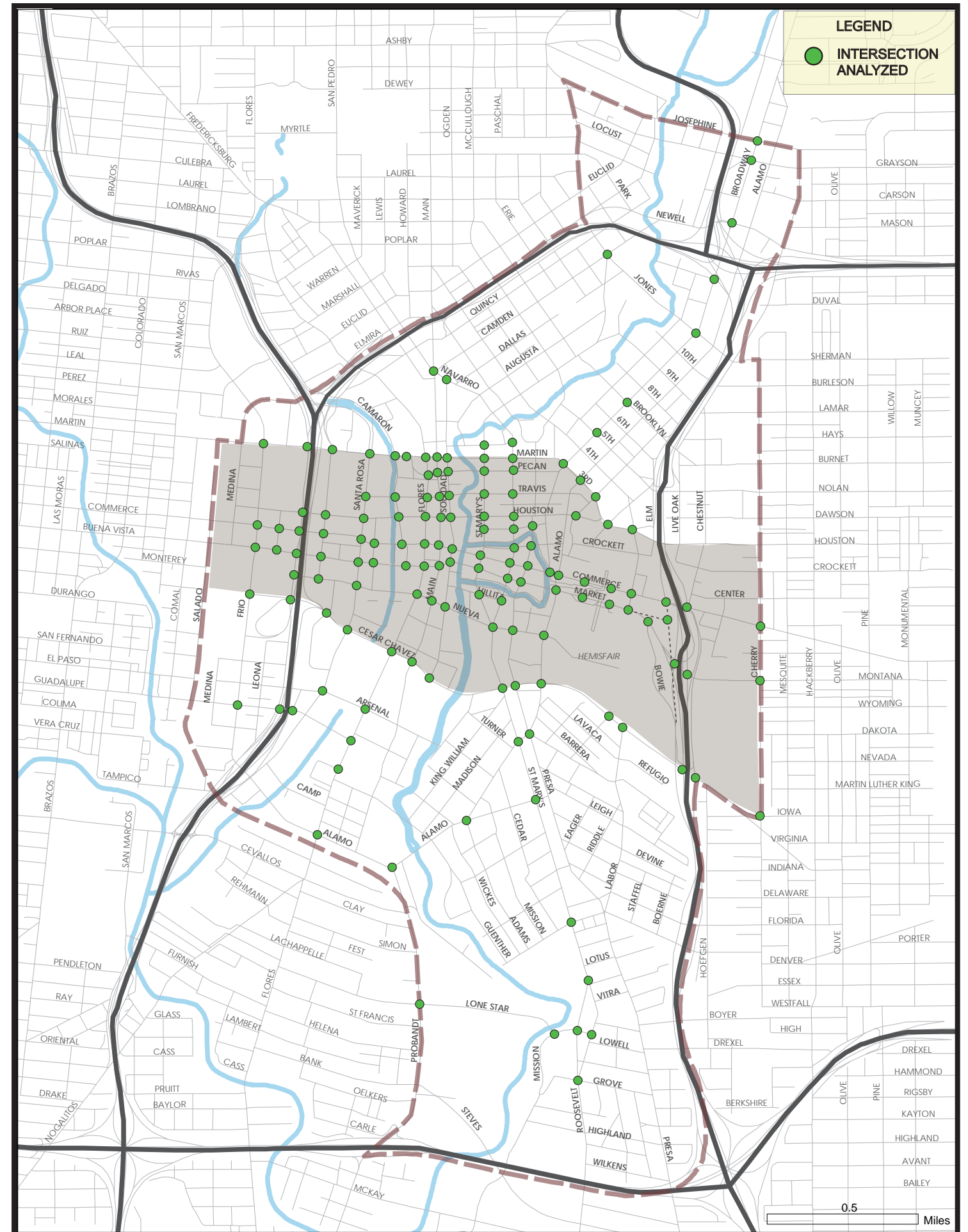


Intersection of Frio and Buena Vista

Data Collection, continued
 In addition to extensive traffic volume data, the project team recorded and obtained field data consisting of pavement widths, lane widths, sidewalk widths, separation distances if present, median widths, posted speeds, pedestrian volumes at selected intersections and signal timing. Accident data was requested for a number of the study area intersections and mapped by location.

The Downtown roadway network was modeled using a computer software program called SYNCHRO. The traffic data, geometry and traffic control information were input into the SYNCHRO files for the AM and PM peak hours. Travel time runs were performed on Commerce and Market during peak hours and the times were used to calibrate the model for existing conditions. A total of 134 intersections were analyzed and are contained in the SYNCHRO model as shown in **Figure 1-9**.

Figure 1-9
 Intersections Analyzed



Intersection Capacity Analysis

The SYNCHRO analysis results provide an indication of how the intersections are currently functioning during the weekday peak hours. The results are based on the methodology outlined in the Highway Capacity Manual which is a recognized industry-standard for evaluating intersections. The results are provided as levels of service (LOS). The LOS is based on the average delay experienced by motorists traveling through the intersection. The LOS can vary from LOS A to LOS F with LOS A representing the best condition with little or no delay and LOS F the worst condition with substantial delay and congestion (see **Figure 1-10**). The analysis results, as displayed in **Figure 1-11**, show that the 18 intersections listed in the box at right, currently function at a LOS D (yellow), E (red), or F (blue) during one or both peak hours. All other intersections analyzed perform at LOS A, B, or C.

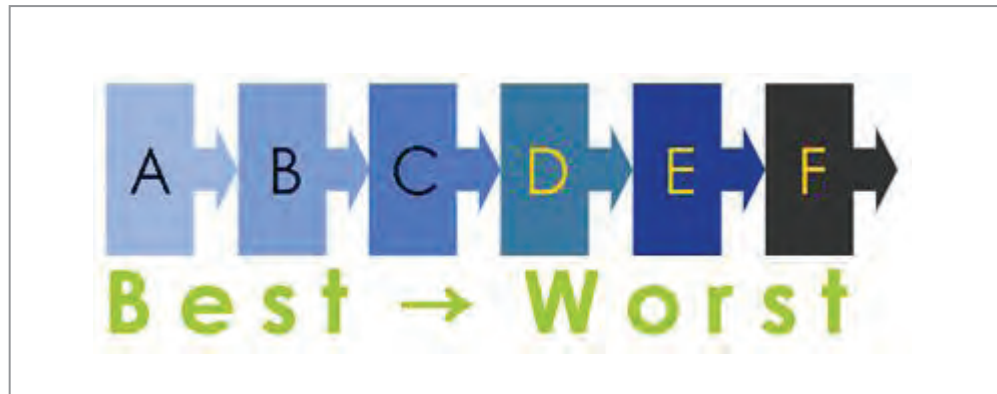


Figure 1-10 | Levels of Service (LOS) Exhibit

The results indicate that Downtown San Antonio intersections operate very well during peak hours with only a few exceptions. An “acceptable” LOS can vary by the character of the surrounding area. For example, a LOS D is typically considered as favorable for downtowns in urban areas. Residents of rural areas may consider a LOS C as unacceptable. It is not atypical for vibrant downtowns to have intersections operating at levels of service E and even F during the peak hours.



Westbound Commerce Street at RiverCenter Mall

INTERSECTIONS ANALYZED AND FUNCTIONING AT LOS D, E OR F:

MARKET STREET AT:
 FRIO
 FLORES
 ALAMO

FLORES STREET AT:
 NUEVA

SANTA ROSA AT:
 NUEVA
 TRAVIS
 MARTIN

CÉSAR CHÁVEZ BOULEVARD AT:
 INTERSTATE 37
 ALAMO
 ST. MARY’S
 SANTA ROSA

BROADWAY AT:
 MCCULLOUGH
 BROOKLYN
 NEWELL

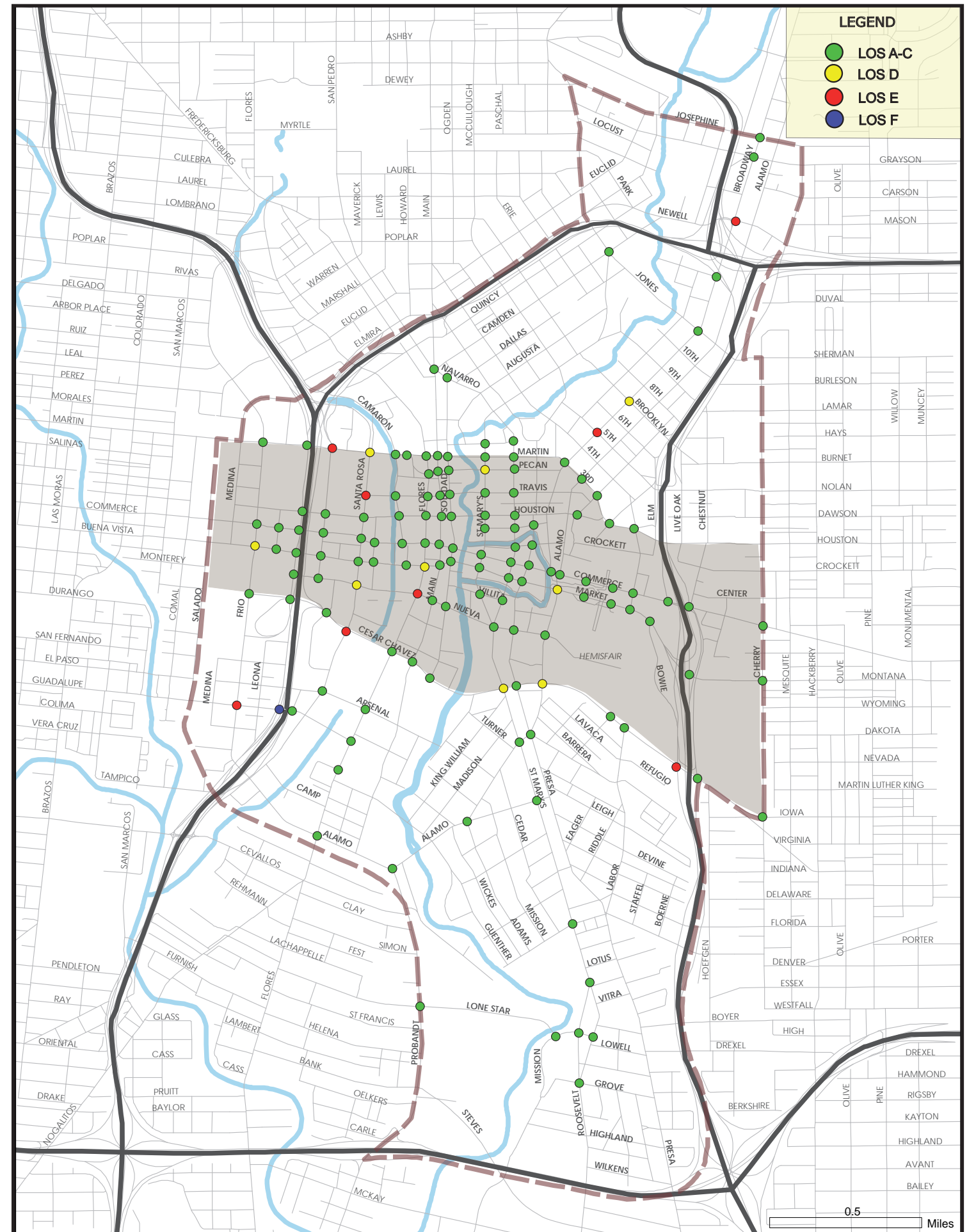
ST. MARY’S AT:
 PECAN

FRIO AT:
 GUADALUPE

GUADALUPE AT:
 PECOS LA TRINIDAD

MARTIN AT:
 SAN SABA

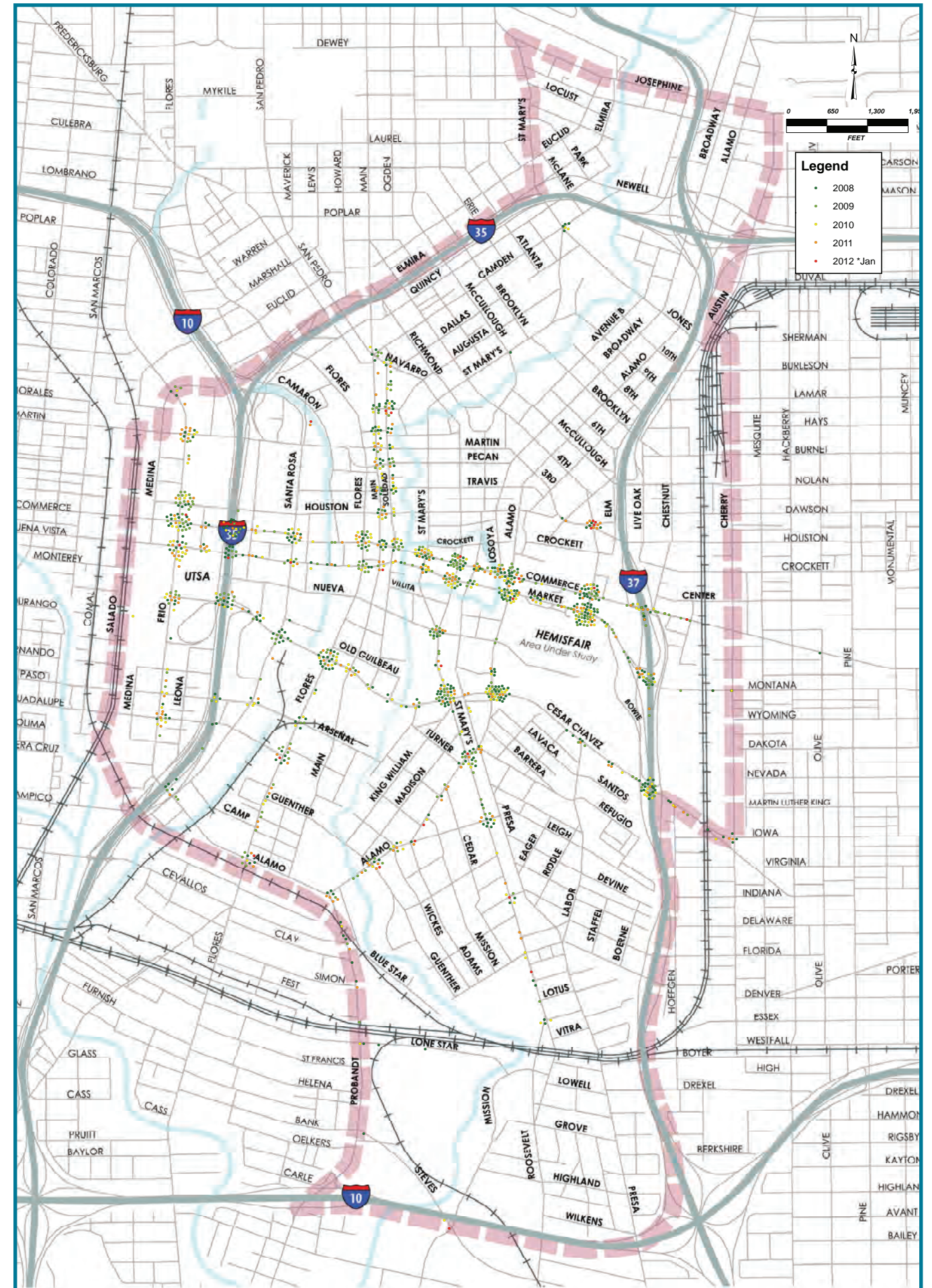
**Figure 1-11
 Existing Levels of Service (LOS)**



Accident History

In addition to traffic data and intersection geometry, accident data was obtained for a number of relevant intersections throughout the study area. The data was requested for the period from 2008 through 2011 and for January 2012. A cluster map was created showing the locations of accidents throughout the study area. As shown in **Figure 1-12**, locations that experienced a high frequency of accidents based on the cluster map, include Market Street at Bowie Street, Alamo, Navarro, and Frio; Commerce Street at Bowie Street, Alamo, Losoya, Navarro, St. Mary's, Flores, Santa Rosa and Frio; Frio at Houston Street and Martin Street; César Chávez Boulevard at IH-37 Frontage Roads, Alamo, St. Mary's, Pecos La Trinidad and Frio. Main Avenue and Soledad both show smaller clusters of accidents occurring at intersections between Commerce and Navarro. The frequency may have decreased after Main Plaza was installed and volumes on Main Avenue and Soledad were reduced.

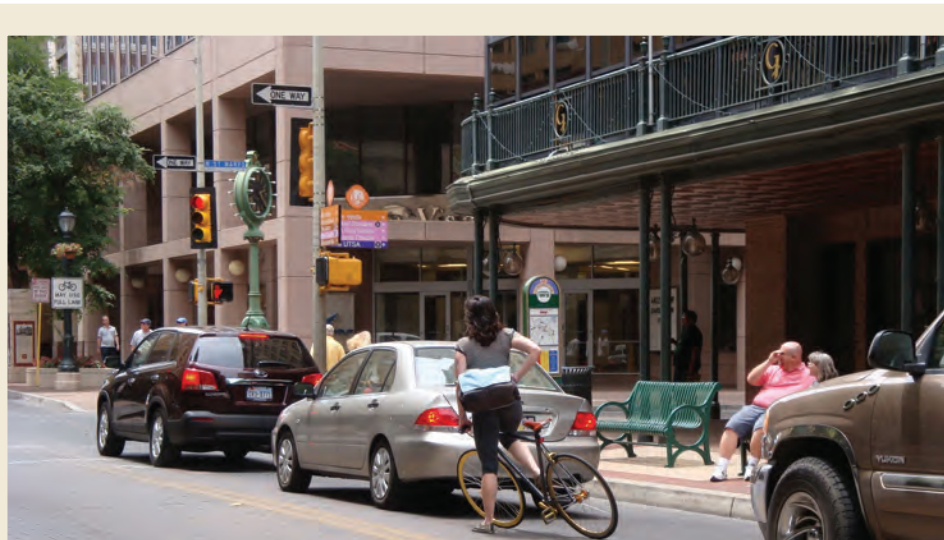
Figure 1-12
Accident Data



Westbound Commerce at Flores



Pedestrian Crossing Commerce



Intersection of St. Marys and Houston Street

THE DESIGN OF STREETS – STANDARDS AND REGULATIONS

San Antonio has several guiding documents that establish policy, planning, and regulatory framework for the Downtown Transportation Study: the 1997 Master Plan Policies, the 1978 Major Thoroughfare Plan (updated 2011) and the Unified Development Code. The Master Plan Policies sets forth policy goals for roadway development – for example, “create streetscapes which promote both pedestrians and vehicles.” The Major Thoroughfare Plan (MTP) and its companion piece, the Major Thoroughfare Plan Map, assign a classification system for City streets and highways, and set the location and right-of-way (ROW) widths for major roadways in order to accommodate future transportation demands in the City.

THE DOWNTOWN PLANNING CONTEXT

The MTP was amended in 1991 to create a new classification, Arterial Type C, specifically for downtown streets that function as arterials but lack right-of-way width to function as a higher order arterial. The new designation permitted a reduced ROW from 70 feet to 40-60 feet and included South Alamo, Nueva, Travis, San Saba, Camaron, Euclid, Lexington, Camden, Losoya, Elm and Bonham Streets.

Several downtown streets were upgraded to Primary Arterial Type A requiring 110 feet ROW (Santa Rosa, Commerce) or 55 feet as couplets (St. Mary’s- Navarro, Martin-Pecan, Quincy-Elmira).

The 1991 designation acknowledges that many downtown streets are largely built out and right-of-way acquisition to achieve major arterial status would prove difficult. The implications for this study is that streets vary considerably in actual and planned ROW width, with dissimilar ROW present in the same street from one segment to the next. The Downtown inset to the MTP map in **Figure 1-13** shows the 1991 revised classification for the Downtown streets.

The Unified Development Code (UDC) is the regulatory arm of the City’s Master Plan and contains specific guidance for designing and engineering roadway infrastructure under a range of development scenarios. The UDC has been updated (2010 last revision) to incorporate newer standards such as Context-Sensitive Street design included in the Form-Based Code. These, as well as the Traditional Neighborhoods Street Design table (Section 35-506, Table 506-2) provide minimum widths for improvements to the downtown streets and sidewalks and state where bike facilities, including lanes, are required. Recognizing the inherent challenges of achieving planning consistency in the downtown streets, the UDC contains exceptions clauses where existing substandard streets do not have to be brought up to applicable UDC standards, based on approval by the Director of the City Development Services Department.

The Master Plan Policies sets forth policy goals for roadway development—for example, “create streetscapes which promote both pedestrians and vehicles.”

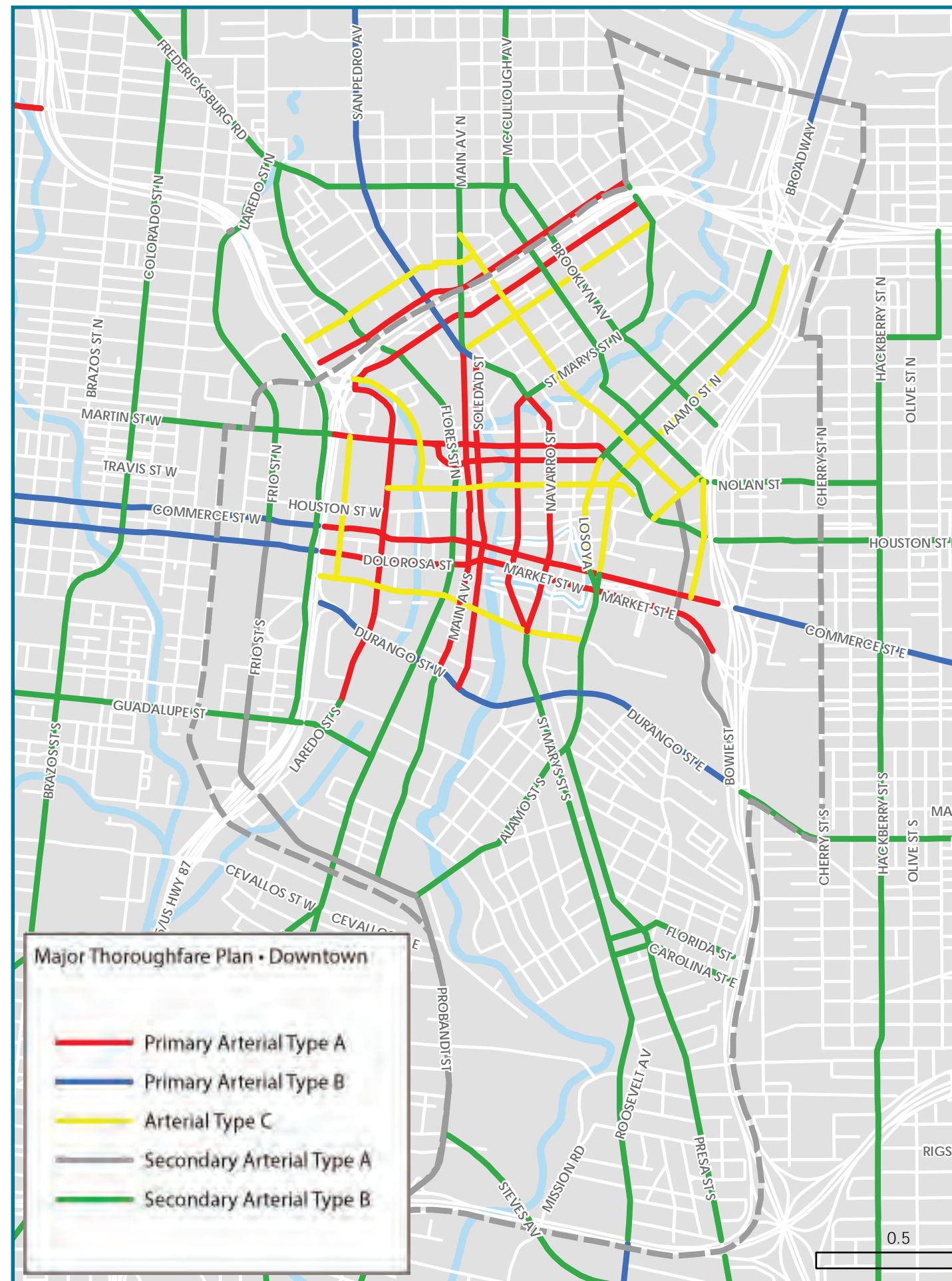


Figure 1-13
Major Thoroughfare Plan – Downtown Inset

A MYRIAD OF PLANS – BUT WHAT GOVERNS STREET DESIGN?

San Antonio Master Plan Policies

The **1997 Master Plan Policies** is the current policy document for decisions relevant to city planning. It contains 485 policy statements relating to all aspects of growth, infrastructure, land use and natural resources (http://www.sanantonio.gov/planning/master_plan.pdf).

The following Master Plan Policies support the Downtown Transportation Plan:

- **Urban Design, Policy 1b:** Create and adopt urban design guidelines and standards which specifically encourage pedestrian safety and comfort, transit access, street level amenities, and circulation between neighborhood centers. Provide design standards for streetscape improvements including appropriate landscaping, furnishings, signage/graphics and pedestrian paths, along with gateways, landmarks, and markers at strategic access/transition points.
- **Urban Design, Policy 1c:** Encourage street patterns that promote pedestrian connections and multiple connection points and do not contribute to collector street congestion.
- **Urban Design, Policy 1g:** Prepare design and construction policies and standards for utility transportation infrastructure, capital improvement projects, public facilities and development projects that reinforce neighborhood centers and provide diverse, pedestrian-friendly neighborhoods.
- **Urban Design, Policy 5i:** Develop a safe and convenient pedestrian travel network with sidewalks, walkways and trails integrated into the transportation system and neighborhood centers.
- **Urban Design, Policy 5j:** Urban design as an integral part of all new construction and improvement of transit centers, streets, and pathways in the city.
- **Urban Design, Policy 5k:** Accommodate the specific needs of disabled individuals in all transportation modes.
- **Urban Design, Policy 5h:** Consider bicycling in the design and construction of public streets.

San Antonio Master Plan Transportation Components

- **The 1978 Major Thoroughfare Plan (MTP)** and its companion piece, the Major Thoroughfare Plan Map, assign a classification to City streets and highways, and set the location and rights-of-way (ROW) widths for major roadways in order to accommodate future transportation demands in the City. The Map is updated yearly as amendments are adopted; the MTP text has not been updated since 1978. (http://www.sanantonio.gov/planning/GIS/pdf/Map_Catalog_pdfs/1009GG04.pdf)
- **The San Antonio Bike Plan 2011 + Implementation Strategy** (Ordinance 2011-09-29-0794) covers the entire city with recommendations for on- and off-road bicycle facilities. The Plan serves as a guide for establishing an extensive network of commuting and recreational cycling routes and should be considered whenever roadway reconstruction or design occurs.
- **The San Antonio Complete Streets Policy** (Ordinance 2011-09-29-0795) requires consideration of multi-modal transportation during planning, design, construction and operation of City streets. At this point the Policy applies to city projects only. Sample policy language is below:
 - **1A. Complete Streets** are defined as roadways that take into account all users, including people driving cars, using transit, riding bikes, walking, and using wheelchairs.
 - **1B. Complete Streets** also take into account people of all ages and abilities, including children, older adults, and persons with disabilities.
 - **1C. To be “Complete,”** not all streets must be the same. The function of the road (e.g. local, collector, and arterial) and the level of vehicular, pedestrian, and bicycle traffic will be considered.
 - **1D. The context of the land use adjacent to the road** (e.g. residential, commercial, community facility, or industrial) will be used as a determinant in identifying road type.

Bicycle facilities are currently not required on local streets and are required on collector streets, secondary arterials and primary arterials. The 2011 Bike Plan calls for implementing over 1,700 miles of new bike facilities without altering the basic guidelines of the UDC – the latter references the current AASHTO “Guide for the Development of Bicycle Facilities” for implementation.

The 1997 Master Plan policies, the 2011 Complete Streets Policy and the 2011 Bike Master Plan all support creation of a multi-modal transportation network through downtown. Context Sensitive Street design is encouraged by policy as well as the UDC, supporting creation of a system of street types appropriate to the particular context – neighborhood, commercial corridor or urban mixed use. By maintaining flexibility for downtown cross-sections, regulations respect the unique and variable characteristics of San Antonio roadways, leaving room to develop a plan that enhances the special character of many downtown streets.



What is a Complete Street?

- A Complete Street is a roadway planned, designed and operated to enable safe access for all users, including pedestrians, bicyclists, motorists and transit riders of all ages and abilities.
- There is no one type of Complete Street since roadways must serve different purposes for different land uses, so not all roadways will have bicycle lanes or be sized for freight trucks.
- Complete Streets are context-driven, with different components and amenities depending on the community being served. The commonalities are that all modes of travel are accommodated in a safe, accessible and comfortable manner.

Sector and Community Plans

Community Plans and Neighborhood Plans are developed for areas with a population greater than 10,000 people and include multiple neighborhoods. Four community plans overlap the Downtown Transportation Study area, Alamodome, Downtown, Lavaca and River North. All have been adopted through City Council ordinance.

- **Alamodome Neighborhood Plan.** Adopted by ordinance May 1993. Plan focused on Near Eastside, anticipating intensive use of the future Alamodome for conventions and other events and potential for economic development of East Commerce and St. Paul's Square.
- **Downtown Neighborhood Plan.** Adopted 1999; partly superseded with Downtown West Plan 2009, covering area west of IH-10-35. Many recommendations of the plan, such as gateway development, streetscapes and placemaking have relevance to the DTS.
- **Lavaca Neighborhood Plan.** Adopted 2001. This plan recommended multi-modal transportation options, traffic circles, separated bike lanes, streetscaping and pedestrian lighting (especially along S. Alamo Street).
- **River North Master Plan.** Adopted 2009. All of River North is part of the Downtown Transportation Study area, so its recommendations are very relevant to the Downtown Transportation Study. Placemaking, pedestrian comfort and safety and aesthetics are fundamental concepts for transportation and land use improvements. The plan recommended four main street typologies: Avenue (Broadway, McCullough, St. Mary's & Martin), Main Street (Avenue B, Alamo, Lexington), Urban Street (e.g. Brooklyn, Jones) and Residential.

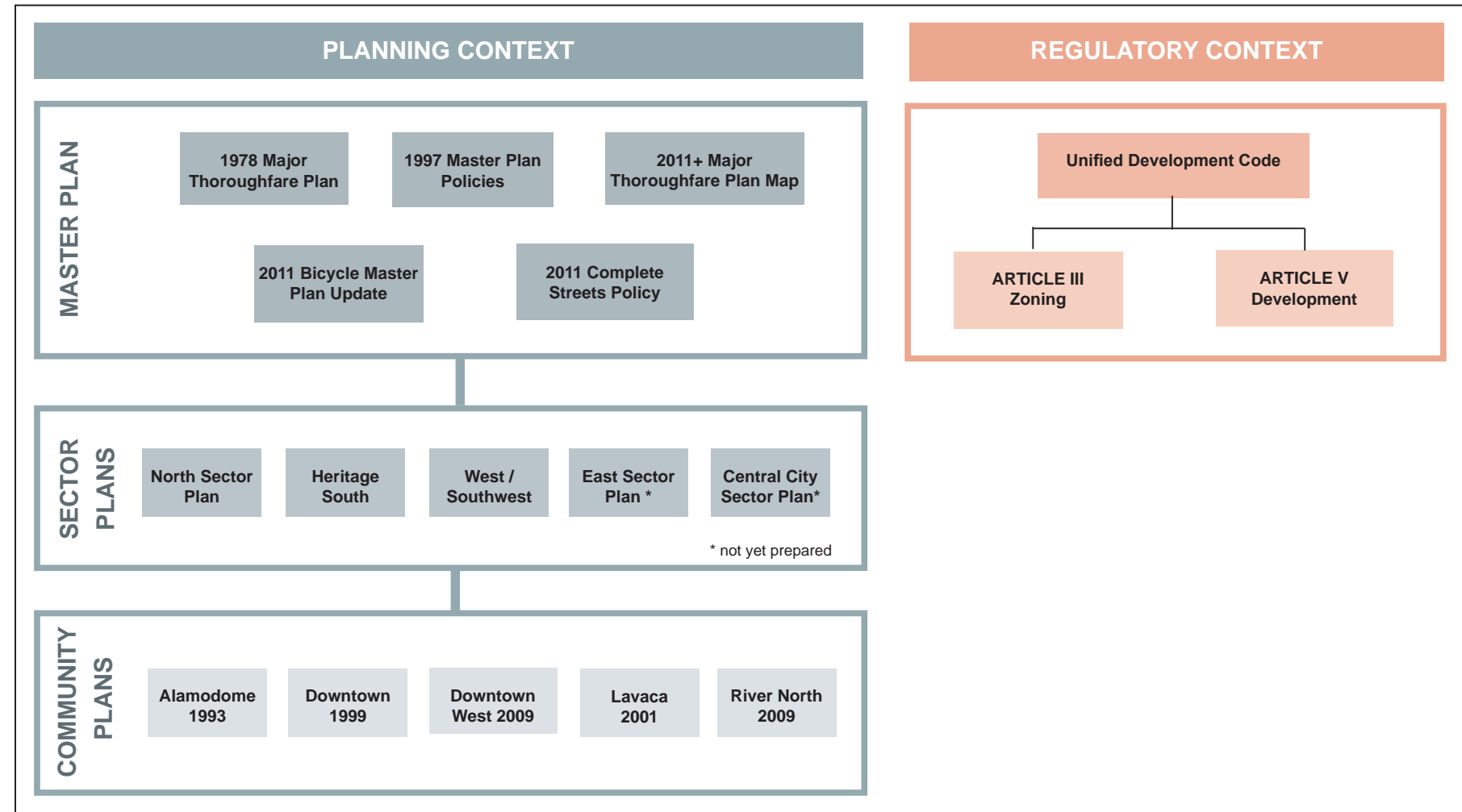


Figure 1-14 | Hierarchy of Downtown Plans and Their Functions

Since the community plans have all been adopted by ordinance, they are official elements of the master plan and should be considered as part of the regulatory guidance. Their primary goals are to improve connections between the near neighborhoods and downtown, and explore the use of multi-modal transportation as a driver of economic activity and mobility options, which are also objectives of the Downtown Transportation Study.

SUMMARY OF SA 2020'S VISION AND TARGETS FOR DOWNTOWN



SECTION TWO: THE VISION FOR DOWNTOWN

SA 2020'S VISION AND TARGETS FOR DOWNTOWN

The result of a community visioning process completed in 2011, SA 2020 identifies “vision areas” for the entire City of San Antonio. Ranging from Arts and Culture to Downtown Development and from Health and Fitness to Transportation. The topic areas establish goals and, in some cases, key indicators of progress in the evolution of the City. Crucially, SA 2020 calls for Downtown to become the “heart of San Antonio,” serving residents from around the City. Its neighborhoods, amenities, shops, restaurants, and businesses will provide homes, entertainment, services, and employment for all residents – and visitors. To achieve this vision, SA 2020 proposes numerous improvements to Downtown, including new housing development, expanded Downtown employment, improved transportation options, reduced vehicle miles traveled, and more comfortable and welcoming pedestrian facilities. These goals will improve the amenities and prosperity of Downtown San Antonio neighborhoods, as well as make it easier to access by multiple transportation modes.

See Table on left for a summary of the SA 2020 vision statements and indicators that are supported by the recommendations in the DTS.

INDICATORS	TARGETS
VISION FOR DOWNTOWN DEVELOPMENT	
In 2020, Downtown is the heart of San Antonio and is everyone’s neighborhood	
<ul style="list-style-type: none"> ■ Number of housing units in Downtown ■ People working downtown ■ Transportation mode options 	<ul style="list-style-type: none"> ● Increase downtown housing units by 5,000 including mixed income and student housing ● Increase the number of downtown employees by 25% (13,775 additional employees) ● Reduce vehicle miles traveled per person by 10%
VISION FOR ECONOMIC COMPETITIVENESS	
In 2020, San Antonio is recognized as a leader in business that prospers through innovation in 21st century industries	
<ul style="list-style-type: none"> ■ Per capita income ■ Job growth in traditional and high technology sectors 	<ul style="list-style-type: none"> ● The better of 1) increase in per capita income by 20% or, 2) be in the top 1/3 of per capita incomes in the U.S. ● Maintain steady job growth in traditional San Antonio sectors, and pursue 10% job growth in health, information technology-security industries, aerospace, and the new energy economy
VISION FOR NATURAL RESOURCES	
In 2020, San Antonio is recognized as a respectful steward of its natural resources and a model for responsible resource management	
<ul style="list-style-type: none"> ■ Tree canopy 	<ul style="list-style-type: none"> ● 15% tree canopy in Central Business District.
VISION FOR NEIGHBORHOODS AND GROWTH MANAGEMENT	
In 2020, San Antonio is known for its cohesive neighborhoods with compelling and unique personalities	
<ul style="list-style-type: none"> ■ Number of pedestrian-oriented neighborhoods ■ Population growth in Center City neighborhoods and Downtown ■ Walkability score 	<ul style="list-style-type: none"> ● Increase number of pedestrian-oriented neighborhoods ● A 15% increase in the Center City population ● A 20% increase in the Walk Score® of Center City neighborhoods
VISION FOR TRANSPORTATION	
In 2020, San Antonio’s transportation system is recognized as a model of efficiency and environmental sustainability	
<ul style="list-style-type: none"> ■ Public Transportation Ridership ■ Travel Time Index (ratio of travel time in peak to travel time in free-flow) ■ Miles of Complete Streets 	<ul style="list-style-type: none"> ● A tripling in transit ridership ● Decrease from 1.23 to a ratio of 1.1 ● A tripling of the number of miles of Complete Streets

Source: SA 2020, Final Report, March 19, 2011

Aside from specific Downtown Development goals, SA 2020 identifies other citywide improvements that will help shape Downtown. These include economic development goals, such as expanding employment opportunities and attracting new industries; improving connections within and among its unique neighborhoods through pedestrian and transportation facilities; and improved environmental stewardship. Downtown may become home to new industries, such as healthcare, biosciences and information technology. Additionally, new Downtown housing options and amenities will help meet the varied demand of new employees in these and other fields. Increased transit usage, pedestrian facilities, and mileage of Complete Streets will help accommodate growth in Downtown without generating as many vehicle trips. Finally, improving the City's management of natural resources includes a target of increasing the tree canopy of Downtown neighborhoods to 12 percent.

The result is a more pleasant, vibrant, and prosperous Downtown that serves the needs of all residents and employees and enables the City to be a gracious host to its visitors.

INTRODUCTION TO DOWNTOWN GROWTH AREAS

The Strategic Framework Plan for the Center City² recommended two categories of Downtown areas that can accommodate primarily residential growth. These are "priority" growth areas and "additional" or long-range or long-term growth areas, both of which have capacity to support the housing targets established in SA 2020 and street-level activity along the Downtown's north-south and east-west corridors.

Priority Growth Areas. These areas have substantial and immediate potential for residential development, in terms of both market demand and physical capacity. Priority Growth Areas are shown on **Figure 2-1** and listed below:

- **River North-Midtown Brackenridge.** The vision for this area includes residential development focused around dining and cultural amenities.
- **Urban/Downtown Core.** The vision for the this area is a lively destination for both San Antonians and visitors alike.
- **HemisFair and César Chávez Corridors.** This area is envisioned as a recreation-focused area with residential uses building upon the history and amenities in HemisFair, and proximity to the Convention Center.
- **Near River South.** The vision for this area is reuse of existing and under-utilized industrial buildings for arts, entertainment, residential, and live/work uses.

Long-Term Growth Areas. These areas already serve as employment centers and have capacity to absorb employment growth as well as additional concentrations of residential. As the name implies these areas are anticipated to develop slowly and build-out much later than Priority Growth Areas. These areas are shown in **Figure 2-1**, and described below:

- **Medical District.** The focus in this area is on the four existing hospitals and surrounding businesses and office space that support the medical profession.
- **Civic Center.** This area is focused on government and civic uses and the associated growth in commercial services and retail that support the concentration of government activities.
- **Near West Side.** This area is expected to attract mixed-use development that can capture the activity generated by the UTSA Campus and the planned Westside Multimodal Transit Center.
- **Near East Side.** Growth in this area will be focused near IH-37 and the esoteric mix of industrial, entertainment and the low density housing Dignowity Hill neighborhood that surrounds the Robert Thompson Transit Center.

See "Priority and Long-Term Growth Areas," Figure 2-1, next page

THE FUNDAMENTAL NEEDS OF DOWNTOWN RESIDENTS

As Downtown grows, even beyond the more than three thousand housing units found there now, the residents will need access to a variety of retail businesses and services that make life in an urban area practical and convenient. In this study these are termed "essentials". The essentials include the daily household needs of individuals and families such as grocery and drug stores, dry cleaners, and day care facilities. Residents also need other types of shopping, including clothing, electronics, and hardware. Residents need educational facilities for both children and adults.

Although not an absolute requirement in all neighborhoods, recreational, dining and cultural destinations are very important in a downtown area. Many people who choose an urban lifestyle do so because they have a particular interest in access to culture, including music, art, and theater. Such residents require these amenities, and they must be accompanied by restaurants, cafes, and bars, allowing residents to find entertainment within close proximity of their homes.

Green space is an important requirement in a downtown, supporting healthy activities such as walking and bicycling, providing play areas for children and allowing residents to unwind in a quiet place. Many downtown residents live in multi-family housing and have a greater need for public open space such as parks and greenways as compared to people who live in single-family homes. These spaces will serve as their outdoor living rooms in some parts of the year, and will also provide visual relief and greenery as a contrast to the built-up environment in downtown.

Finally, downtown residents need efficient forms of transportation, both within the downtown area and to destinations outside of downtown. Some of them may go to

school or work elsewhere, while meeting many of their daily needs downtown. Those residents may access local destinations on foot or by bicycle, while reaching school or work on public transportation. All of these transportation options, and roadway and parking space for private automobiles, are necessary to support the daily activities of local residents.

While the services and amenities described in this section are organized around the needs of residents, many of them are essential for visitors as well. The visitors reinforce the need to provide services, and expand the market for private and public providers of services.

DOWNTOWN GROWTH STARTS AT THE REGIONAL SCALE

Population growth in San Antonio's Downtown depends, as in most U.S. Metropolitan Areas, on complex interactions between a range of economic and demographic variables that collectively drive the supply and demand for Downtown housing. Most of these supply and demand indicators, such as real estate values, income levels, vacancy rates, household size and the age distribution of the population, are quantifiable measures frequently used to develop trends in population and employment growth.

For regional transportation planning the San Antonio - Bexar County Metropolitan Planning Organization (MPO) uses projections of population, households, and jobs to forecast traffic into the future. The future traffic forecasts are used to plan for, and prioritize the funding of transportation infrastructure such as highway expansion, new roads, and public transportation capital projects. The forecasting process begins with the State of Texas trend-based projections of population and employment growth for the entire metropolitan region termed "control totals" because the regional projections remain constant. It is the responsibility of the MPO and its member agencies—like the City of San Antonio—to collaborate and "allocate" population and employment growth to each jurisdiction in the region. Typically the allocation process relies on past trends and the traditional pattern and type of development in the region.



Development at Pearl

² HR&A Advisors 2011, *Strategic Framework Plan for the Center City, San Antonio, TX*

DOWNTOWN GROWTH, CONTINUED

The allocation process is as much art as it is science but the MPO uses land use and demographic data, along with local trends in development types, patterns and amount to develop several “scenarios” of how the region, and in particular, how the City of San Antonio may grow over the next twenty years, and how much transportation infrastructure is needed to accommodate each scenario. Three scenarios were considered in the San Antonio - Bexar County Metropolitan Transportation Plan—Mobility 2035 to distribute 500,000 new residents over today’s (2010) population of 1.7 million people.

- **Current Trend Development.** Assumes three nearly equal shares of the 2.2 million population in the year 2035 living within the IH-410 loop, between the IH-410 and Loop 1604, and outside of Loop 1604. This scenario shows continued radial growth outward from Downtown San Antonio, dispersing housing and jobs in numerous suburban communities. In this scenario, Downtown experiences negligible redevelopment or infill development.

Transportation cost: \$4.6 billion (primarily in highway lane miles).

- **Infill Development.** Concentrates most of the projected growth within Loop 1604 and in built urban and suburban communities where new development can maximize the use of existing infrastructure. Downtown experiences substantially more housing than in the Trend Scenario above.

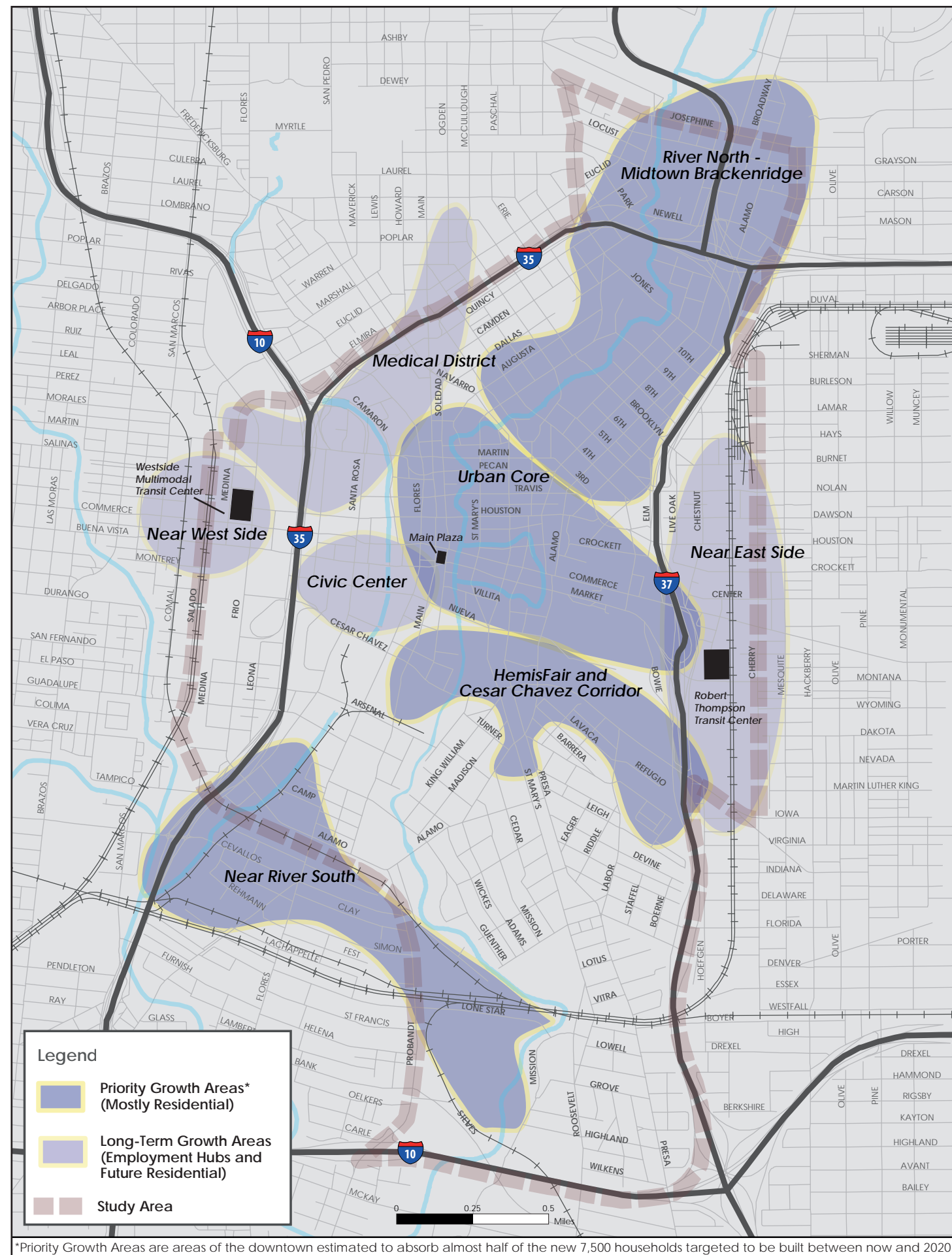
Transportation cost: \$3.6 billion (balance between transit and highway lane miles).

- **Transit Oriented Development.** Focuses housing growth within the major transit corridors leading to San Antonio, and limits growth outside of Loop 1604 to less than 20% of the total population. Development within Loop 1604 is higher density to stay within a reasonable walk to transit stations. Downtown experiences substantially more housing than in the Trend Scenario above.

Transportation cost: \$4.1 billion (significant investment in transit but also requiring highway lane miles).

Although the second and third scenarios are a significant departure from existing development patterns in the San Antonio region, through a participatory process of workshops, the citizens of the region and the MPO member agencies overwhelmingly supported a hybrid scenario combining the Transit Oriented Development and Infill Development scenarios. In this scenario 38% of the region’s population live within IH-410, 46% live in the area between IH-410 and Loop 1604, and 16% reside beyond Loop 1604. This scenario was adopted by the Transportation Policy Board and is the basis for the travel demand forecasting used in assessing the San Antonio Downtown Transportation Study’s (DTS) recommendations.

Figure 2-1 Priority and Long-Term Growth Areas



*Priority Growth Areas are areas of the downtown estimated to absorb almost half of the new 7,500 households targeted to be built between now and 2020.

FROM REGIONAL GROWTH PROJECTIONS TO TRAFFIC FORECASTS

Future year traffic forecasts were developed to identify and analyze the 2012 Bond projects and the Long-Range Transportation Improvements for the DTS. The traffic forecasts were developed using two sources:

1. San Antonio – Bexar County Metropolitan Planning Organization’s San Antonio Multimodal Model (“MPO Model”)

The MPO Model is a regional travel demand forecasting model that estimates traffic and transit ridership across five counties – Bexar, Comal, Guadalupe, Kendall, and Wilson. The MPO Model was a collaborative effort involving the MPO, the Texas Department of Transportation (TxDOT), Alamo Area Council of Governments, and VIA Metropolitan Transit Authority. Travel demand models utilize information on transportation networks (e.g. number of roadway lanes, speeds, lane capacity, transit frequency, etc.) and population and employment projections to estimate the future demand on transportation facilities.

The MPO Model was recently validated to 2008 traffic and transit data³. The validated 2008 model serves as the “Base Year” scenario. The validated Base Year MPO Model was then used as a basis for developing daily traffic and transit estimates for future year 2020.

The MPO Model’s transportation network contains all freeways, major arterials, and transit routes. The Base Year model includes all transportation projects that were built and operational when the 2008 validation occurred. The 2020 transportation networks assumed roadway and transit projects that are planned and have committed funding sources. The MPO Model uses land use data such as population, household characteristics (i.e., income, vehicle ownership, etc.), and employment to estimate the demand for travel.

2. Strategic Framework Plan for the Center City

Population growth projections were developed by HR&A for the Strategic Framework Plan in December 2011. HR&A has developed 2020 and 2035 population forecasts for the four Priority Growth Areas in the Downtown study area. The projections include the following assumptions:

- Population growth from 2011 to 2020 consistent with the targets established in the Strategic Framework Plan, where the four Priority Growth Areas grow by a combined 13,500 residents (7,500 housing units), while other areas grow at the rate projected by the MPO.
- From 2020 to 2035, the population grows at a blended rate of the growth rate projected by the MPO and the rate projected in the Strategic Framework Plan for the period leading up to 2020.

HR&A distributed the future population growth to the four Priority Growth Areas.

Table 2-1 summarizes the existing, 2020 and 2035 population totals for the Downtown study area.

The MPO Model and the Strategic Framework projections were used to develop future year traffic forecasts. The traffic forecasts were used to identify and analyze the 2012 Bond projects and the Long-Range Transportation Improvements for the DTS.

**TABLE 2-1: DOWNTOWN STUDY AREA
POPULATION GROWTH PROJECTIONS (2011 – 2035)**

PRIORITY GROWTH AREA	2011	2020	2035
River North – Midtown Brackenridge	3,500	7,500	12,000
Urban/Downtown Core	1,800	5,300	8,500
HemisFair and César Chávez Corridor	4,600	8,800	14,200
Near River South	2,600	4,300	6,800
SUBTOTAL	12,500	25,900	41,500
Rest of the Center City Study Area	17,000	21,500	34,600
TOTAL	29,500	47,400	76,100

Source: HR&A Advisors, Inc.



New Construction on Broadway

URBAN RESIDENTIAL LIFESTYLE:

WHAT’S THE ATTRACTION?

In contrast to the conventional population and employment forecasting process based on statistical trends, the targets established for Downtown housing and jobs in SA 2020 and the Strategic Framework Plan for the Center City, are based on a strategy of improving Downtown’s infrastructure, promoting its benefits and attracting people who ordinarily wouldn’t consider an urban lifestyle.

Downtown living attracts people from all stages of life, but for different reasons:

“**Young professionals**” enjoy the compact and well equipped nature of the city center, close to work where the commute by foot or bicycle can be recreational, and amid other young professionals sharing the diversity of entertainment, lively street life, and places to socialize.

“**Empty nesters**” who no longer need the big home in the suburbs move to Downtown to be closer to work, reduce their expenses and gain more leisure time.

“**Retirees**” move downtown to lower their housing cost and be close to the services they enjoy and need, like restaurants, cultural facilities, entertainment, transportation and quality health care.

Adapted from the article “Cities are Hot Again,”
Les Christie, *CNNMoney.com*



³ San Antonio Multimodal User’s Guide for Version 2.0 (AECOM, May 2011)

ASSESSMENT OF GROWTH AREA TRANSPORTATION CHOICES

The analyses in this section provide a new way to look at the Downtown transportation system and a basis for future action. The maps and figures provide baseline data that can serve as a tool for decisions and actions going forward. Accessibility is about transportation networks and destinations, so improvements can be made through changes relating to either of those parts. The term accessibility is used to describe people's ability to easily reach the destinations that help them meet their fundamental needs. The accessibility analyses support future activities including:

Focus on Increasing Walkable Destinations:

Outside of priority growth areas, economic development activities can focus on attracting convenience retail stores, personal services and other shops into locations that offer street connectivity but lack destinations.

In Priority Growth Areas, development and re-use activities provide opportunities to introduce new walkable destinations. The City's review of project proposals should include an analysis of whether the project includes components that will enhance accessibility within the surrounding Downtown district. Locations for new civic activities including parks and schools are important and their accessibility should receive particular attention.

Focus on Increasing Connectivity for Walk and Bike Access:

New connections that shorten distances to destination-rich areas may be created through mid-block paths and off-street bikeways.

Focus on Project Design:

A focus on design detail including location of entries, architectural and landscape design that provides interest and comfort to pedestrians, comfortable lighting levels and clear pathways can combine to make walk trips shorter and more appealing.

Site planning features can support a higher level of accessibility through placing main entries at public sidewalks so walkers don't have to cross expansive parking lots, and by creating a high level of connectivity with small blocks or mid-block walking connections. Super-blocks and street vacation increase walk distances, reducing accessibility.

GROWTH AREA TRANSPORTATION CHOICES AND ACCESSIBILITY

This section of the DTS focuses on the quality of local accessibility within Downtown. Many people value a high level of accessibility from both their homes and workplaces. Businesses want accessibility to their customers, workers and suppliers.

In the future, Downtown San Antonio will have increased housing and economic activity, and along with these increases should come improved accessibility to the full range of destinations.

With a large number of destinations in close proximity, many people will want to access those destinations on foot. Walking access, along with potential improvements to such access, is discussed first in the section below. San Antonio has room for improvement relative to other large cities. As of 2012, San Antonio's overall Walk Score is 41 out of 100, 40th among large US cities. The Walk Score website ranks locations on a scale of 0 to 100, identifying walkability. Neighborhoods with high walkability scores are places where many errands and other activities of daily living can be done on foot. The Downtown neighborhood greatly exceeds that average, with a Walk Score of 89, but this still leaves opportunities to improve walking accessibility within downtown.

Advantages of increased downtown accessibility include:

- Reduced vehicle trips and reduced average trip length – saving people time and money and taking cars off San Antonio's streets
- Independent mobility for youth, seniors and other non-drivers
- Greater convenience for people living and working downtown
- Makes transit, carpool and vanpool more attractive commute options because mid-day chores can be easily accomplished on foot
- Easy patronage to downtown businesses

WALK ACCESSIBILITY

For many people, an area's walkability is one important indicator of its desirability as a place to live. One measure of walkability is the proximity of housing to a high concentration of daily needs, increasing the opportunity to walk to access daily needs and services.

Walkability is also strongly influenced by the quality of the pedestrian network. Quality is determined by how connected streets are to one another, the lengths of blocks, and the presence or absence of sidewalks. All of these, as well as street design, contribute to the level of safety and comfort felt by pedestrians. In the DTS study area, the pedestrian network is generally quite strong. The streets are well-connected

to one another in the downtown area, with grid networks to the north, east, and west of the downtown core, and a modified grid in the Urban Core and HemisFair César Chávez areas. The exceptions to the overall high level of connectivity are the freeway overpasses to the north, east, and west of the Urban Core. Block lengths range from 170 feet up to nearly 800 feet, with many falling in the 300 to 400 foot range that is considered to be a walkable block length. Such block lengths support pedestrian travel that is more direct to a person's destination than blocks around 1,000 feet in length such as might be found in a more industrial area. Throughout much of the study area, there is a good sidewalk network covering both sides of the street in many places, but many of the sidewalks are quite narrow. The level of comfort and safety for pedestrians varies throughout the downtown area. In the Urban Core, Pearl District, and King William neighborhood, in particular, the streets and sidewalks are provided for greater pedestrian comfort and safety than in other parts of Downtown, although sidewalks in certain Urban Core areas are narrow.

Method for Evaluating Walkability and Access to Destinations in the Priority Growth Areas

The following analysis assesses the walkability of Downtown by considering the concentration and coverage of daily needs in the priority growth areas. Areas with high coverage have access to more of the destinations providing for daily needs. Higher concentration of destinations means that there is more choice and variety in the destinations that are accessible by foot.

The analysis focuses on the priority growth areas because attracting new downtown residents requires a broad mix of retail and services. While this analysis describes the concentration and coverage of destinations in the priority growth areas in detail, the accompanying maps also characterize access to these destinations throughout Downtown.

The assessment calculates the concentration of a variety of essential daily needs that contribute to livability Downtown within each of the priority growth areas. These daily needs include schools, entertainment, parks, restaurants, parking, urban retail essentials and urban services essentials. Destination locations were collected from Google Earth for each category in March 2012. A walkshed buffer of ¼ mile was drawn around each of the destinations using the street network distance rather than as-the-crow-flies to accurately portray the proximity of destinations within walking distance. Darker colors on the maps indicate higher concentrations, where multiple destinations exist within the same ¼ mile.



Pedestrians at Crockett Street Bridge



Pedestrians on Crockett Street

Evaluation of the Walkability and Access to Destinations in the Downtown Priority Growth Areas

The concentration of destinations and the proportion of the growth areas that have access to these destinations are shown in **Figures 2-2 through 2-8** and summarized in **Figures 2-9, 2-10, and 2-11**. The priority growth area with the greatest average number of destinations within a ¼ mile walking distance is the Urban Core, with approximately 50 destinations within a ¼ mile. Of these destinations, those with the highest concentration are entertainment destinations, followed by restaurants. Compared to the other priority growth areas, the Urban Core has the highest concentration of all destination types, except for schools, which are evenly concentrated throughout the priority growth areas.

The Urban Core priority growth area also has the highest percent of area that has access to at least one destination. Fifty percent of all areas in the Urban Core are within ¼ mile of the destination categories, except for urban services essentials, which has 42% coverage. This means that people living in 58% of the Urban Core could not reasonably be expected to access urban services by foot; other modes of transportation to reach urban services essentials would be required, such as by car, bike or transit. However, the Urban Core has by far the greatest access to urban services essentials in the Downtown, followed by Near River South with only 9% of coverage.

The HemisFair and César Chávez priority growth area follows the Urban Core in combined concentration of destinations and coverage. While this area has a high concentration and coverage of entertainment and restaurants, it lacks access to urban services essentials and has a moderate level of access to urban retail essentials. While this area lacks these urban essentials, it provides good access to parks with nearly 50% of the area having access to parks.

The River North priority growth area has less coverage of destinations than the Urban Core priority growth area and the HemisFair and César Chávez priority growth area. About 30% of the area has access to parks and entertainment destinations, with about 15% of the area having access to restaurants, parking and retail. River North lacks the urban services essentials needed to support residential growth. Based on the concentration and coverage of destinations in River North, the level of parking is high.

The Near River South priority growth area has the least access to destinations compared to the other priority growth areas. There is greater access to entertainment and restaurants and lower access to parks, urban retail essentials and urban services essentials. There is also a low concentration of services, with an average of one to two destinations within a quarter mile.

CONCLUSIONS REGARDING ACCESSIBILITY

The findings described above are summarized in **Figure 2-10**, showing the aggregated number of destinations accessible in a quarter mile from any geography in Downtown San Antonio. Overall improvements to transportation in the downtown will need to be supported by land use policies encouraging the services missing in some parts of the downtown. These uses will support a feedback cycle in which additional services attract an increase in residential population, which in turn attracts a further increase in services. This approach is consistent with that envisioned in the Strategic Framework Plan for Center City, which emphasizes the growth of housing as a way of supporting other desired services. Not all of the destinations measured in this analysis are provided by private development and supported by the feedback cycle. As housing is developed, the City will need to set aside land for parks and schools, while working to retain and improve the pedestrian transportation network supporting pedestrian travel throughout the downtown area.



VIA Trolley on Houston Street



Pedestrians on Commerce Street at Alamo

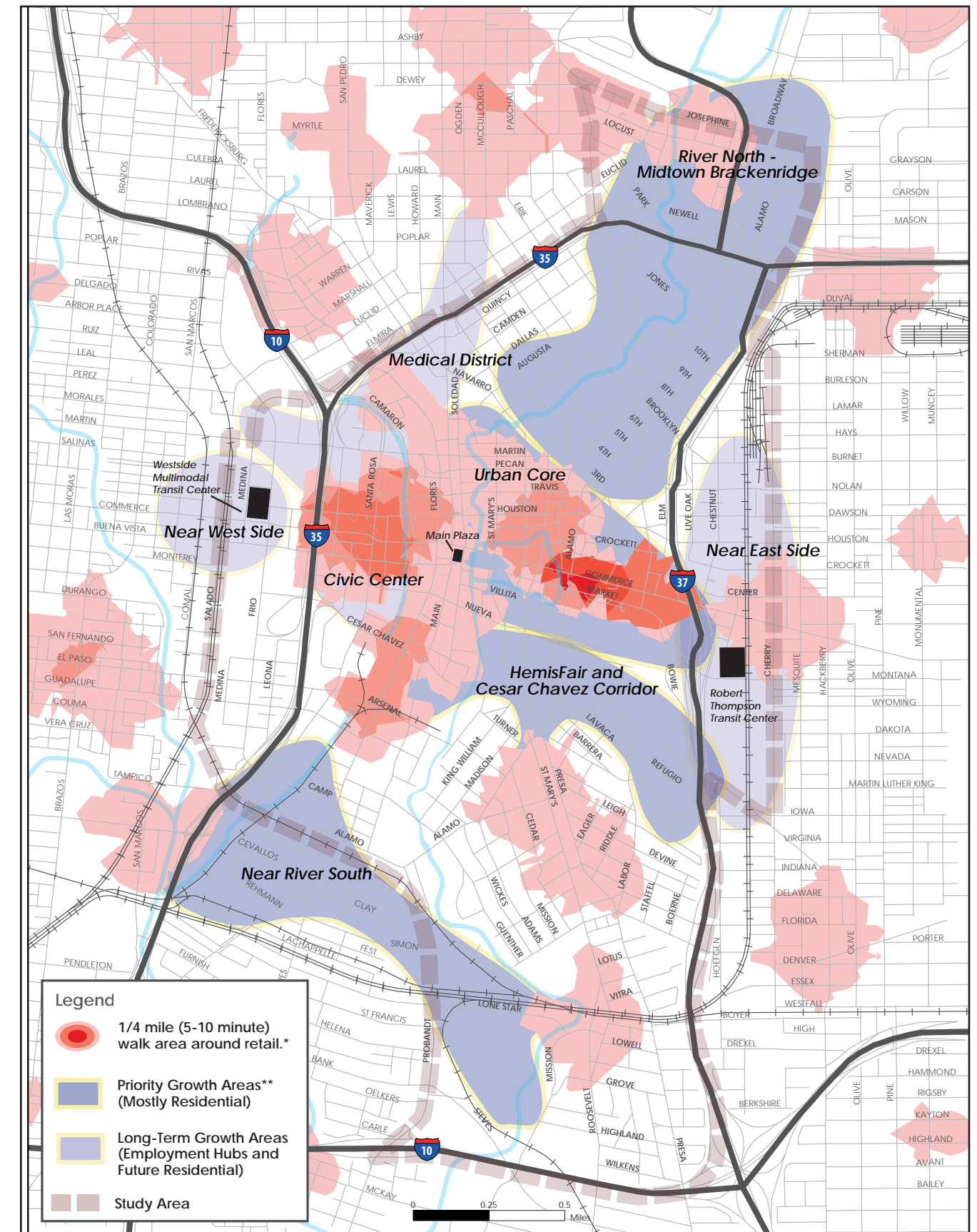
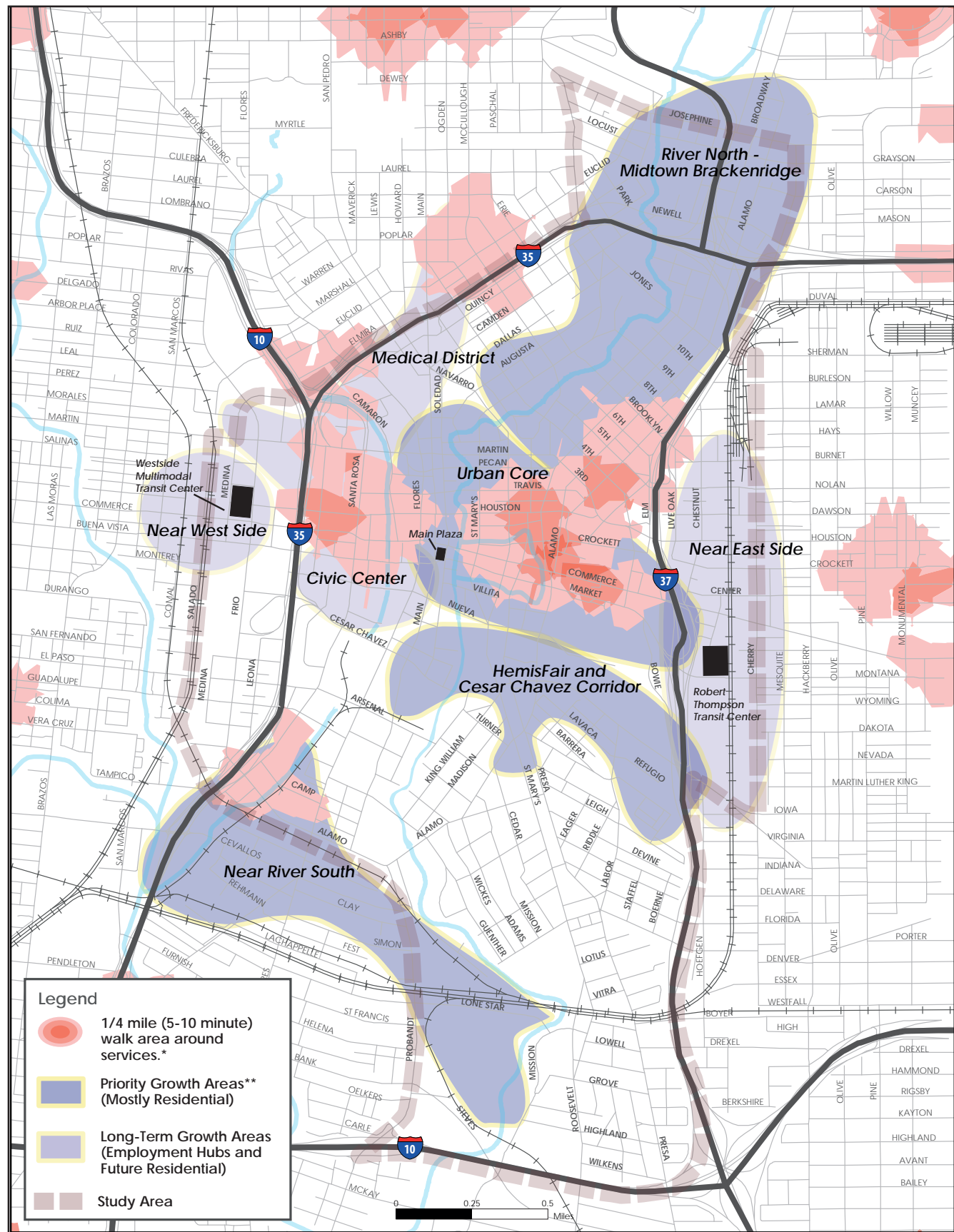


Figure 2-2 | Access to Essential Services from Growth Areas

Figure 2-3 | Access to Essential Retail from Growth Areas

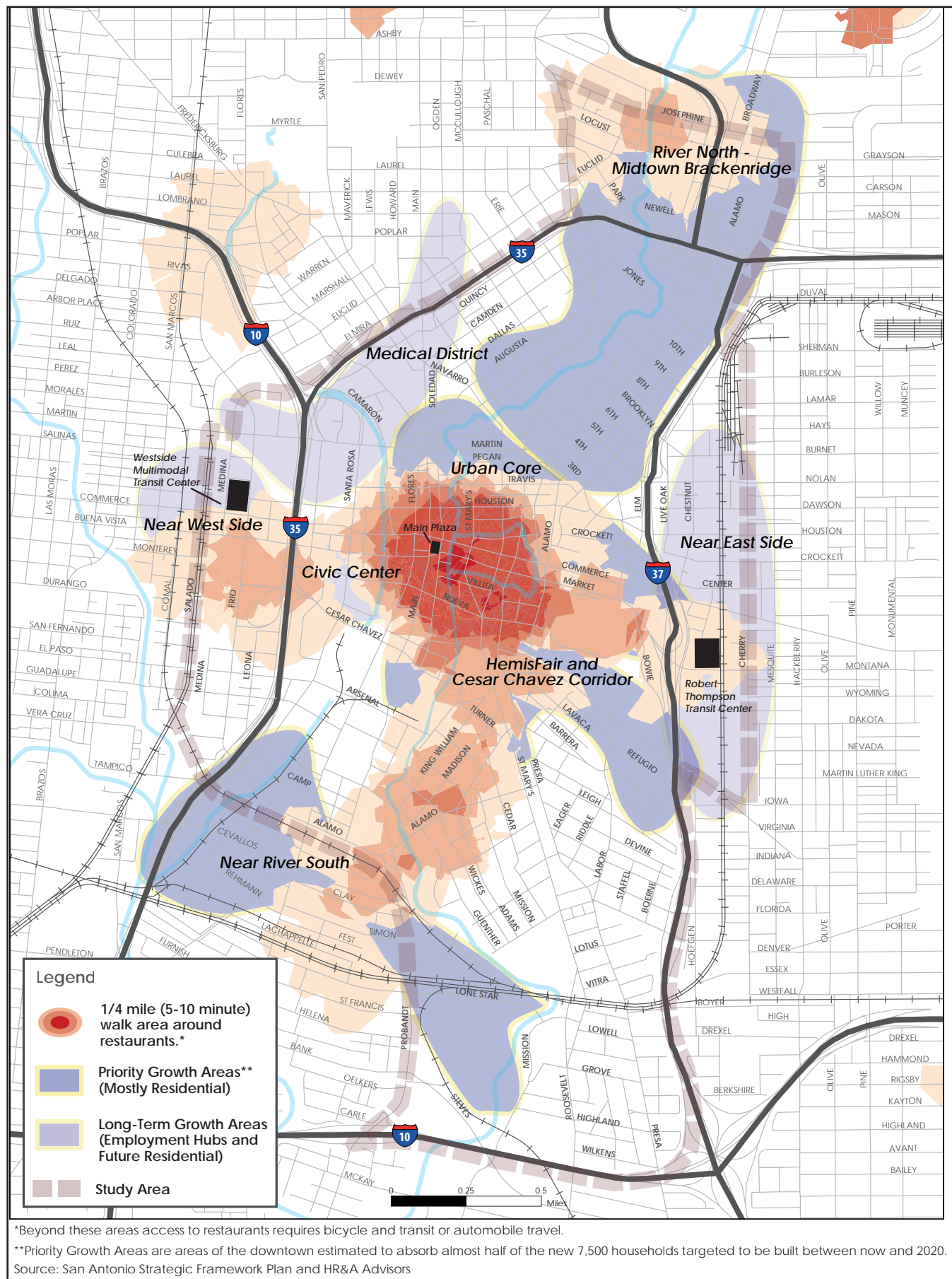


Figure 2-4 | Access to Restaurants from Growth Areas

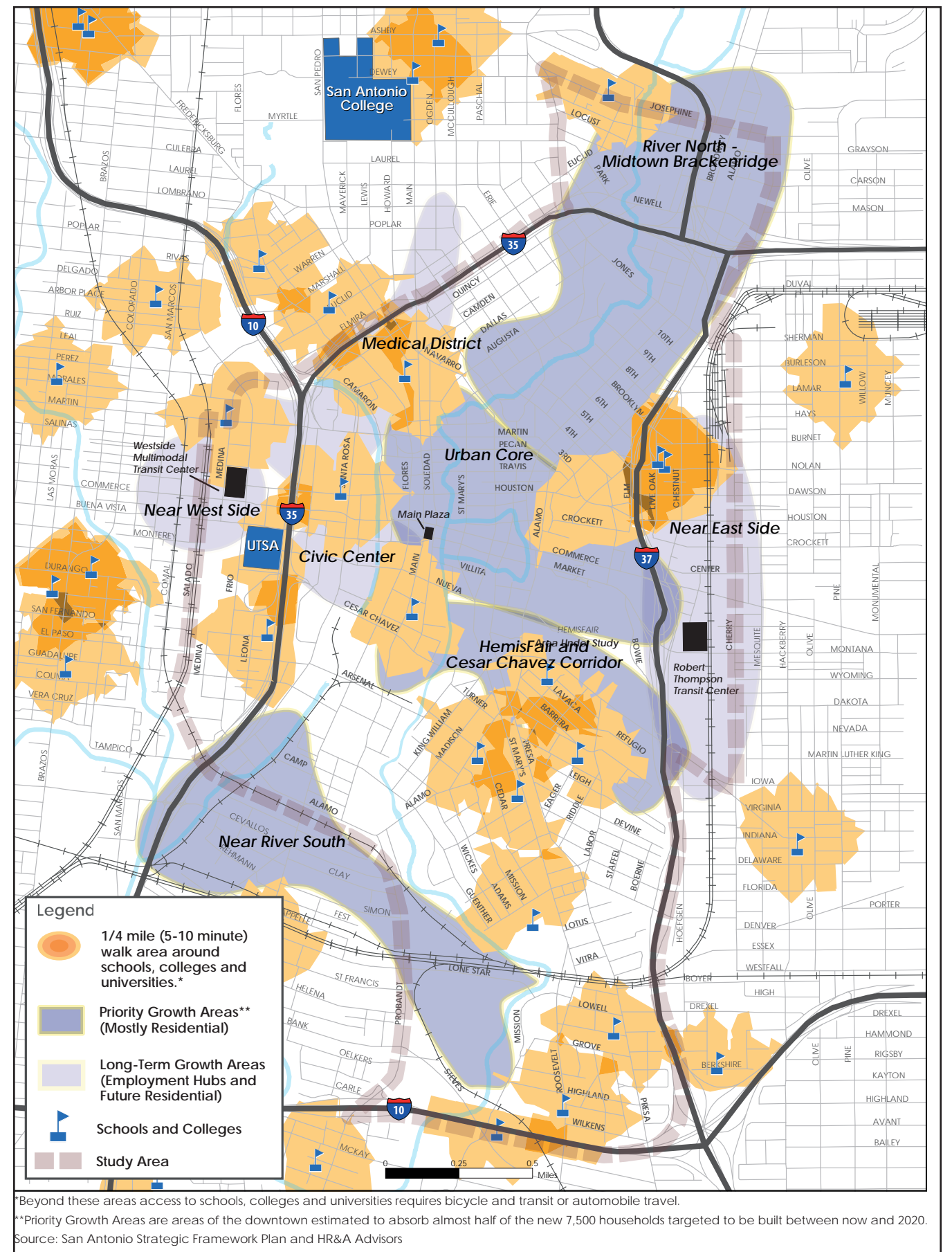
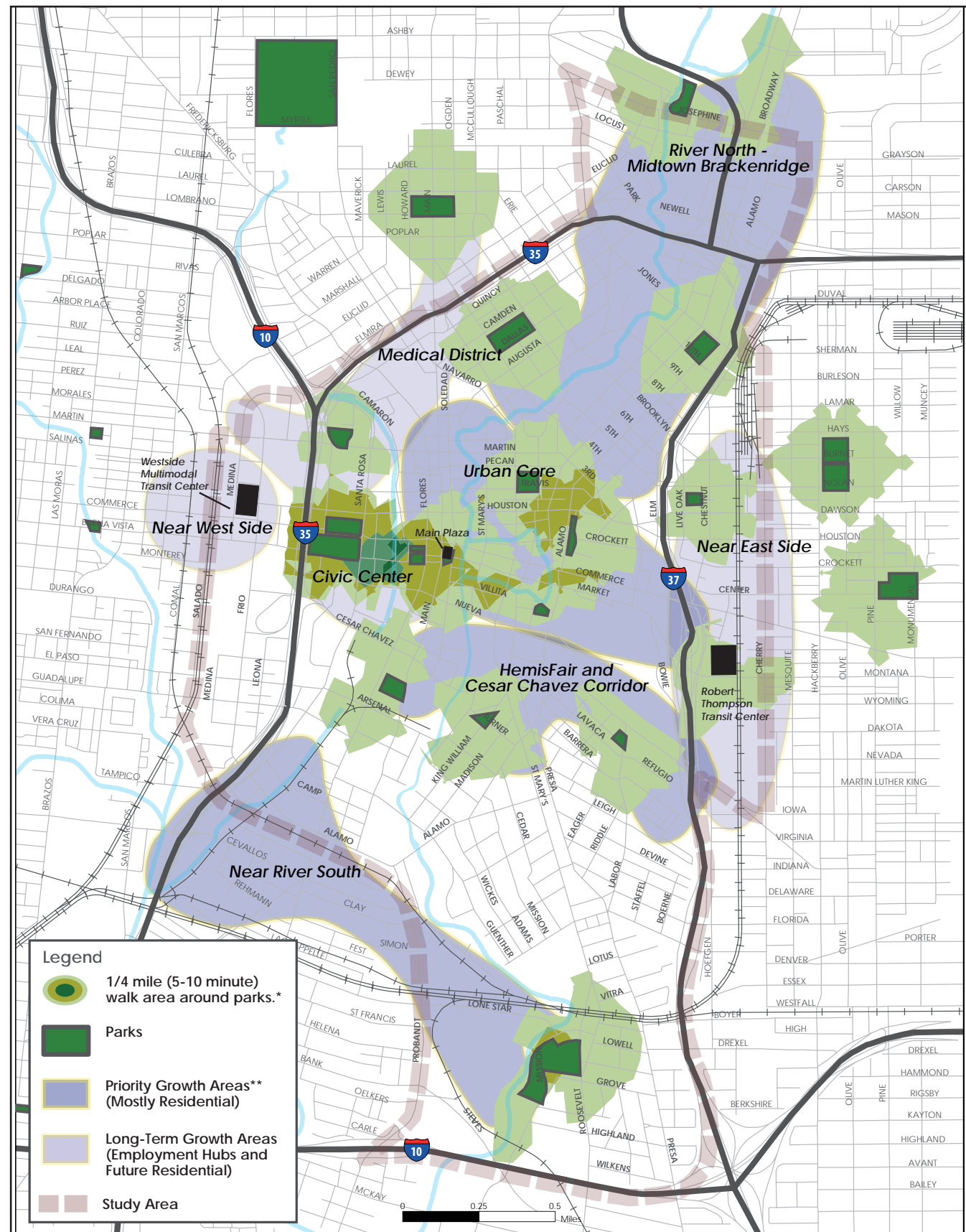
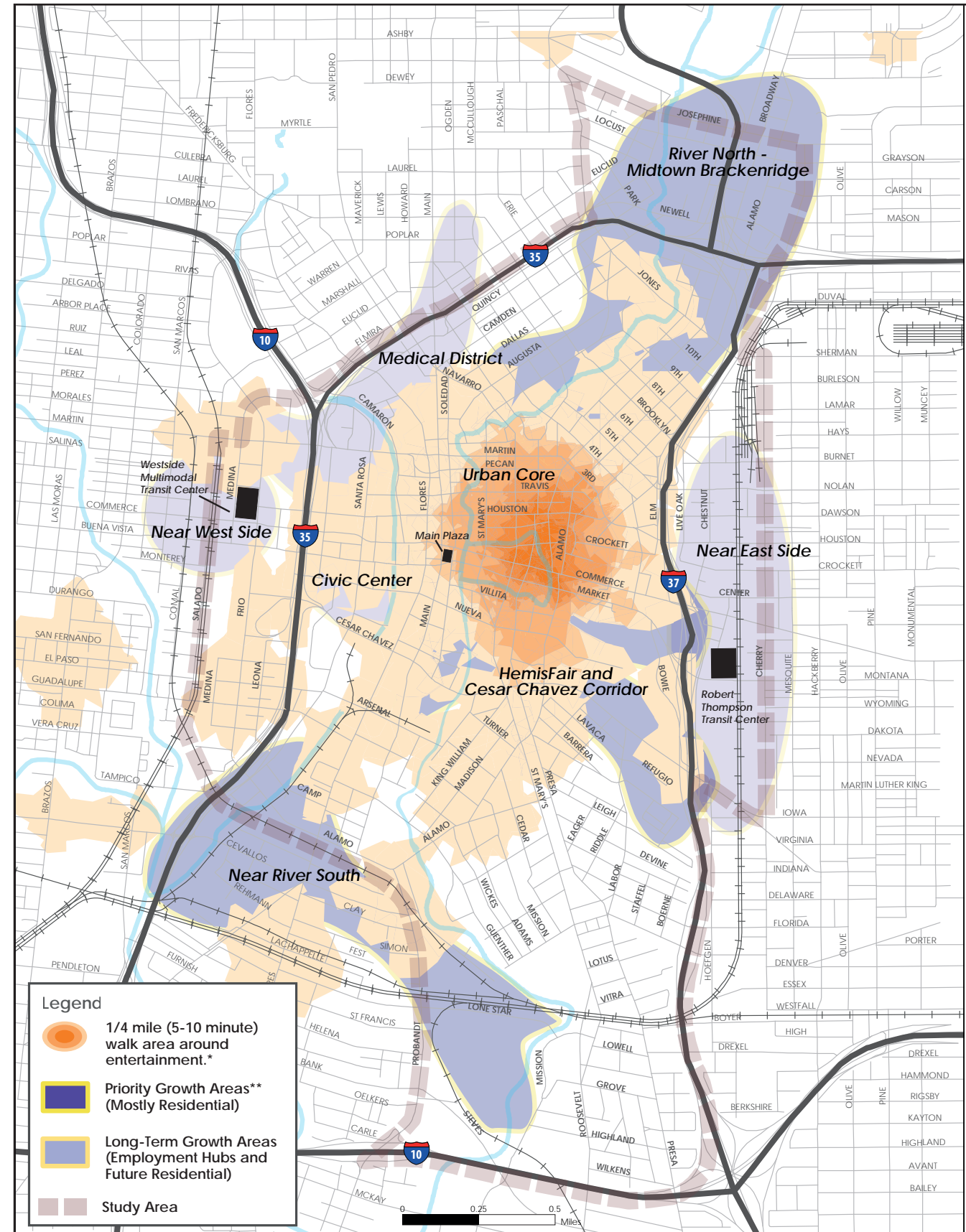


Figure 2-5 | Access to Schools from Growth Areas



*Beyond these areas access to parks requires bicycle and transit or automobile travel.
 **Priority Growth Areas are areas of the downtown estimated to absorb almost half of the new 7,500 households targeted to be built between now and 2020.
 Source: San Antonio Strategic Framework Plan and HR&A Advisors

Figure 2-6 | Access to Parks and Recreation from Growth Areas



*Beyond these areas access to entertainment requires bicycle and transit or automobile travel. Entertainment destinations include movie theaters, performing art centers, cultural destinations and bars.
 ***Priority Growth Areas are areas of the downtown estimated to absorb almost half of the new 7,500 households targeted to be built between now and 2020.
 Source: San Antonio Strategic Framework Plan and HR&A Advisors

Figure 2-7 | Access to Entertainment from Growth Areas

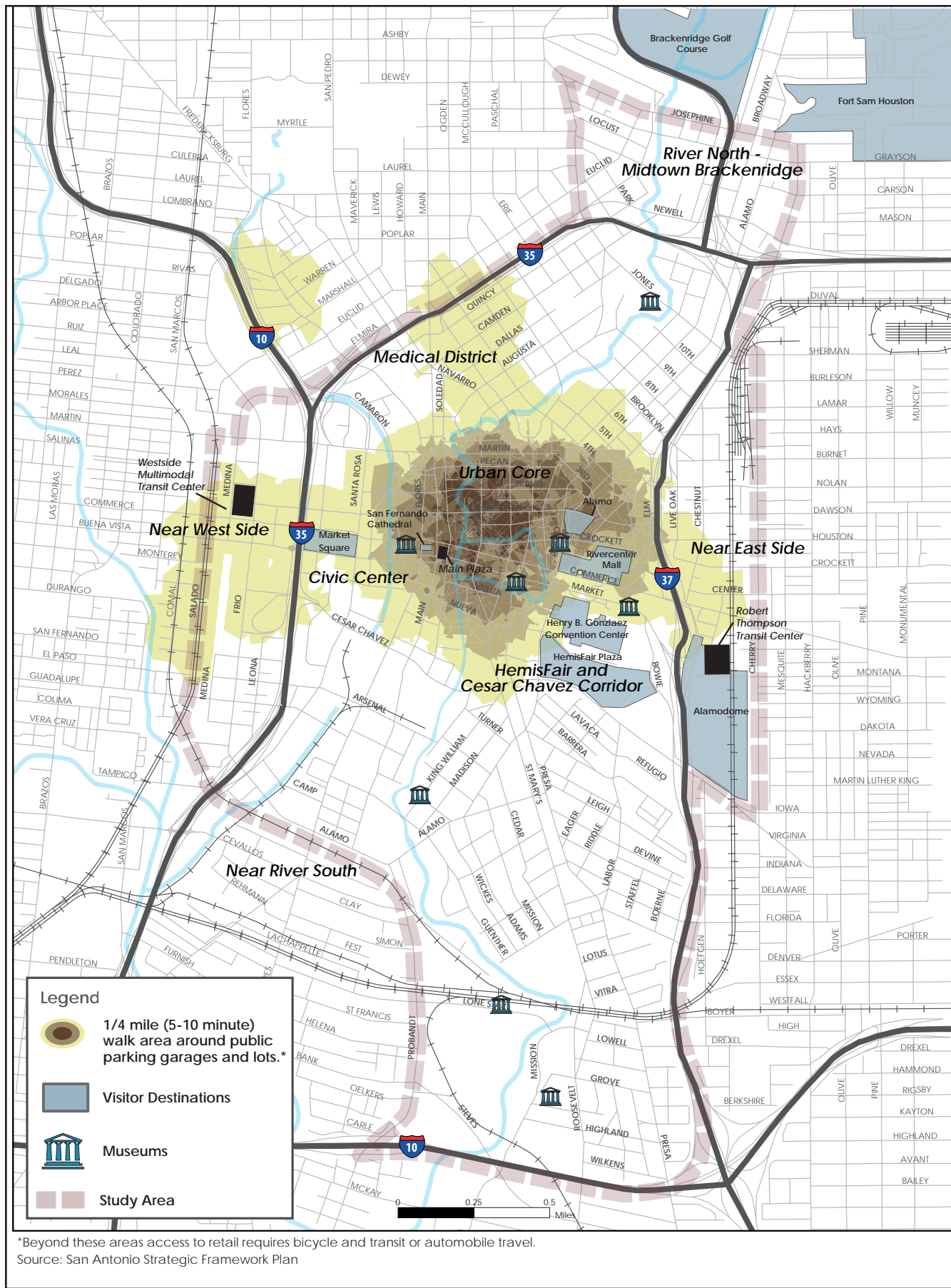


Figure 2-8 | Access to Visitor Destinations from Parking

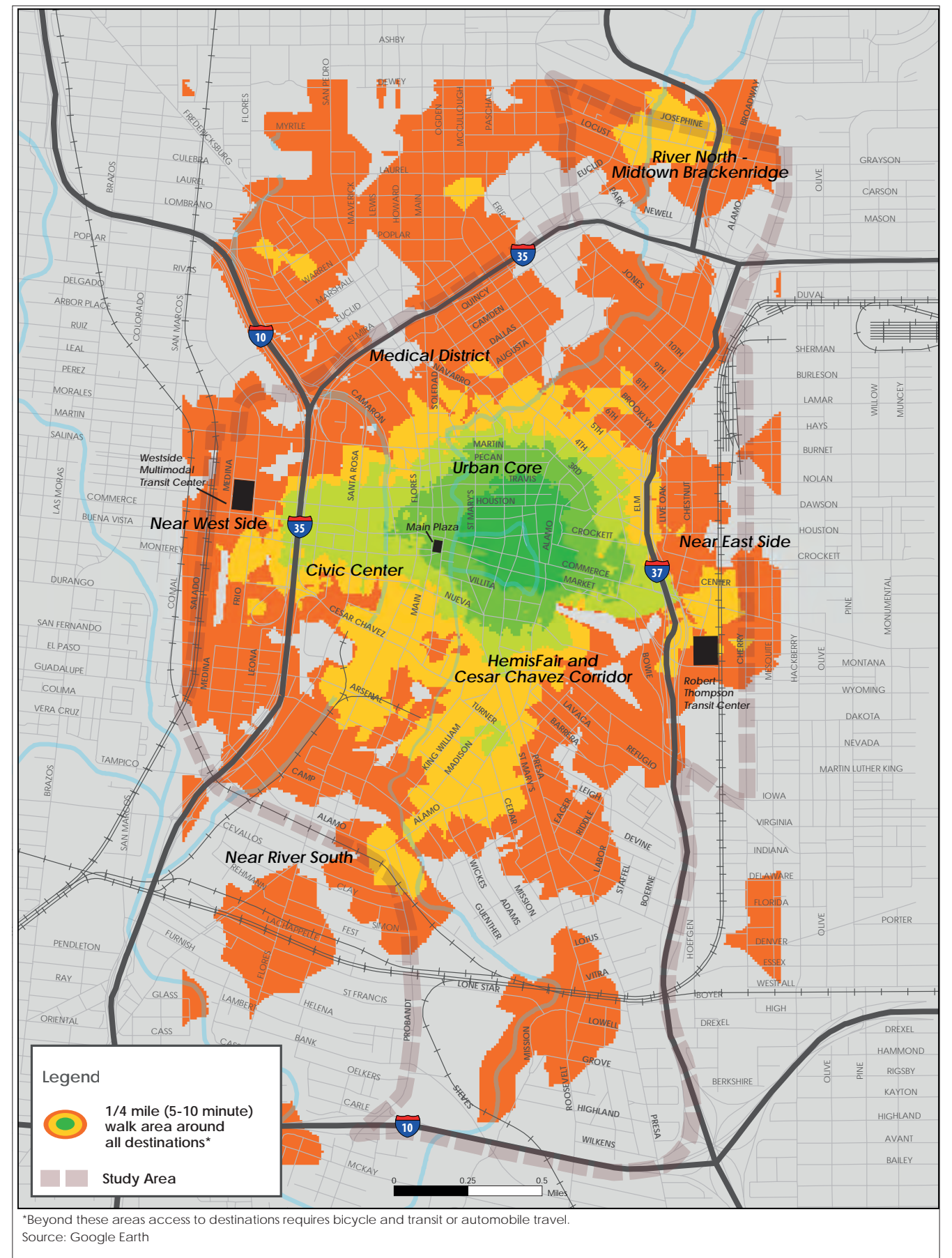


Figure 2-9 | Access to All Destinations from Growth Areas

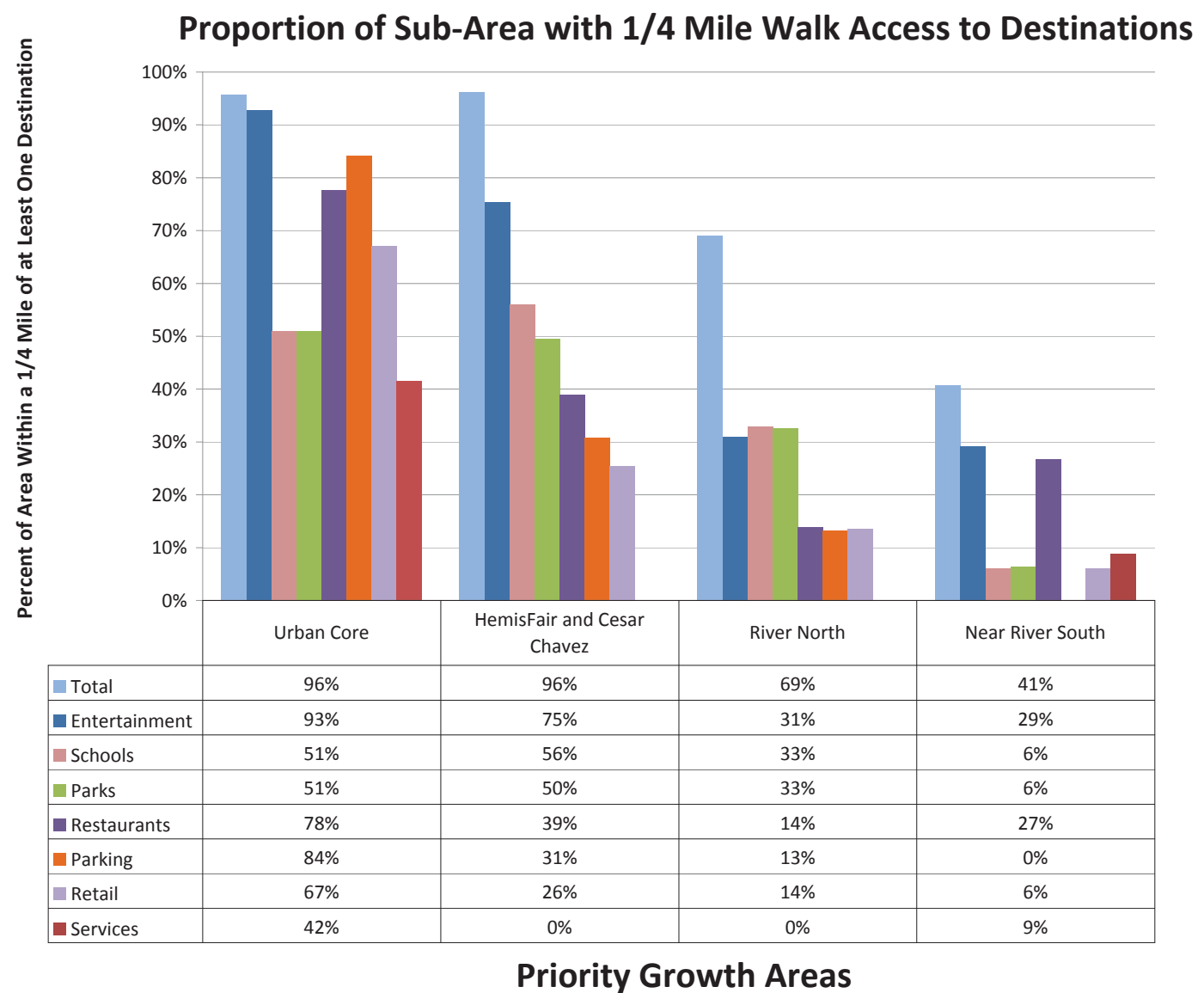


Figure 2-10: Proportion of Sub-area within 1/4 Mile Walk Access to Destinations

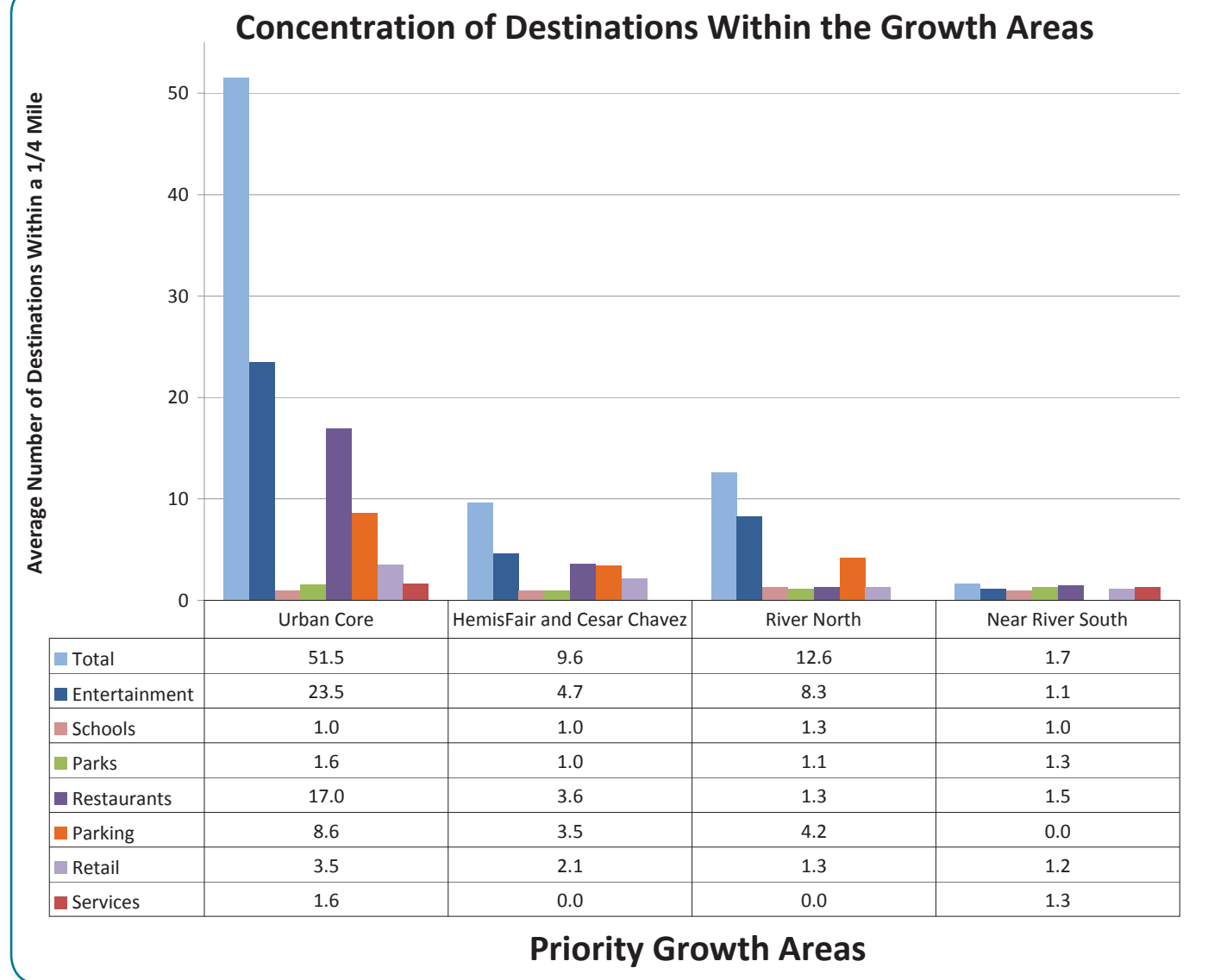


Figure 2-11: Concentration of Destinations Within Growth Area

BIKE ACCESSIBILITY

Bicycle Connectivity

Bicycle travel provides a longer-range option than walking for some Downtown residents and visitors. It builds upon the options for them to meet their daily needs in and around Downtown using non-motorized transportation, which in turn reduces traffic in the area. Daily needs include recreational activities, and bicycle-based recreation abounds Downtown, with access to the River Walk and surrounding trails.

The downtown area has an adequate existing bike network, which is shown with the solid blue and orange lines on **Figure 2-12**. Visitors can access the downtown from the south, east, and west, while access from the north is more limited. Within the downtown, there are more north-south routes than east-west routes, with expansions planned in both directions. From the north, access to the Urban Core is available via the River Walk, but some cyclists would prefer a more direct route along a major street such as Broadway. In addition, major destinations, such as the University of Texas at San Antonio (UTSA) campus, that attract significant numbers of cyclists could receive additional attention in designing routes that specifically serve those high-travel areas.

A key aspect of the bike network in San Antonio is the B-Cycle stations located throughout the DTS project area. These stations provide short-term bicycle rentals, which can be used one-way and dropped off at another station for travel throughout the area. There are B-Cycle stations in each of the priority growth areas, as shown on **Figure 2-13**.



To quantify current and future bicycle access in Downtown, proximity of bike routes to priority growth areas was calculated based on the City's current Bike Plan. The results show where existing and planned bicycle facilities that could be used by most users or a "basic rider" are in close proximity to the future growth areas (see ABC's box on pg. 14 for description of basic riders).

The results are shown in **Table 2-2**. A 1/4 mile radius was chosen for this analysis because this is considered to be how far a basic rider is willing to ride to access a bicycle facility. This network was also overlaid on the priority growth areas to show how well connected future residential areas are to other areas of Downtown, **Figure 2-13**. Together, this analysis shows what percent of the growth areas have access to basic rider bicycle facilities currently and in the future. The future bicycle facilities shown in these figures are based on the City of San Antonio's Bike Plan.

Figure 2-12 Existing and Future Bicycle Facilities and B-Cycle Stations Based on the City Bike Plan



*A Basic Rider is one that is comfortable riding on "neighborhood streets and shared use paths and prefers designated facilities such as bike lanes or wide shoulder lanes on busier streets" (AASHTO, 1999). The facilities that are considered comfortable for a Basic Rider to use are bicycle boulevards, bike lanes, buffered lanes, cycletracks, paths, wide shoulders and streets assigned a neighborhood street type.

**Beyond these areas access to bicycle facilities is not reasonable for a Basic Rider.

Source: City of San Antonio 2011 Bike Plan Plan

Bicycle Connectivity, Continued

Currently, the area with the greatest access to rider bicycle facilities is River North. As shown in Table 2-2, 100% of the River North priority growth area is within 1/4 mile of a basic rider bicycle facility. The priority growth area with the lowest current accessibility to basic rider bicycle facilities is the Near River South, with nearly 49% access. The Urban Core and HemisFair and César Chávez priority growth areas have moderate access to basic rider bicycle facilities, with around 72% access.

With the additions of key bike facilities in western downtown, future bike access in the Urban Core is projected to increase to 100%. The accessibility to bicycle facilities in the HemisFair and Near River South increases to 80% under the future planned bicycle facilities. Even with this increase in access, there are still some gaps connecting the growth areas for the basic bike rider. The largest gap is the missing link between River North and Midtown Brackenridge to the northern portion of the Urban Core and Near West Side. Improved access to the Near West Side would allow for future residents in the River North and Midtown Brackenridge area to access the University of Texas at San Antonio and major destinations in the northern portion of the Urban Core by bike.

THE ABC'S OF PLANNING FOR BICYCLE USERS

Bicycle riders have varying levels of experience and confidence riding on different types of facilities. Understanding which users are served by different types of facilities can help in planning a more effective bicycle network. An American Association of State Highway and Transportation Officials report defined the three categories of bicycle users as follows:

- **Advanced riders** are most interested in convenience, speed and direct access to destinations. They are comfortable traveling with or next to motor vehicles on streets shared with cars or designated bike routes with ample room for vehicles to pass on the left safely.
- **Basic riders** are less confident than advanced riders though may also be using their bicycles for transportation to destinations such as work, errands or meeting with friends. They prefer being on facilities separated from automobiles or with slow moving traffic.
- **Children and families** need access to destinations such as schools, parks and recreational facilities from residential areas. Children need facilities such as shared off-street use paths or well-defined bike lanes on streets with slow speeds.

Adapted from: Planning and Design of Bicycle Facilities, American Association of State Highway and Transportation Officials (AASHTO), 1999.

Growth Area	Existing	Existing Basic Cyclist Coverage		Future 2020	Future Basic Cyclist Coverage	
		Percent	Population		Percent	Population
River North	1,866	100%	1,866	3,391	100%	3,391
Urban Core	1,406	73%	1,021	2,922	100%	2,922
HemisFair	746	72%	534	4,357	80%	3,491
Near River South	2,077	49%	1,015	2,774	80%	2,211

Based on City of San Antonio Bike Plan

Table 2-2: Existing and Future Population Within 1/4-Mile of a Basic Cyclist Facility

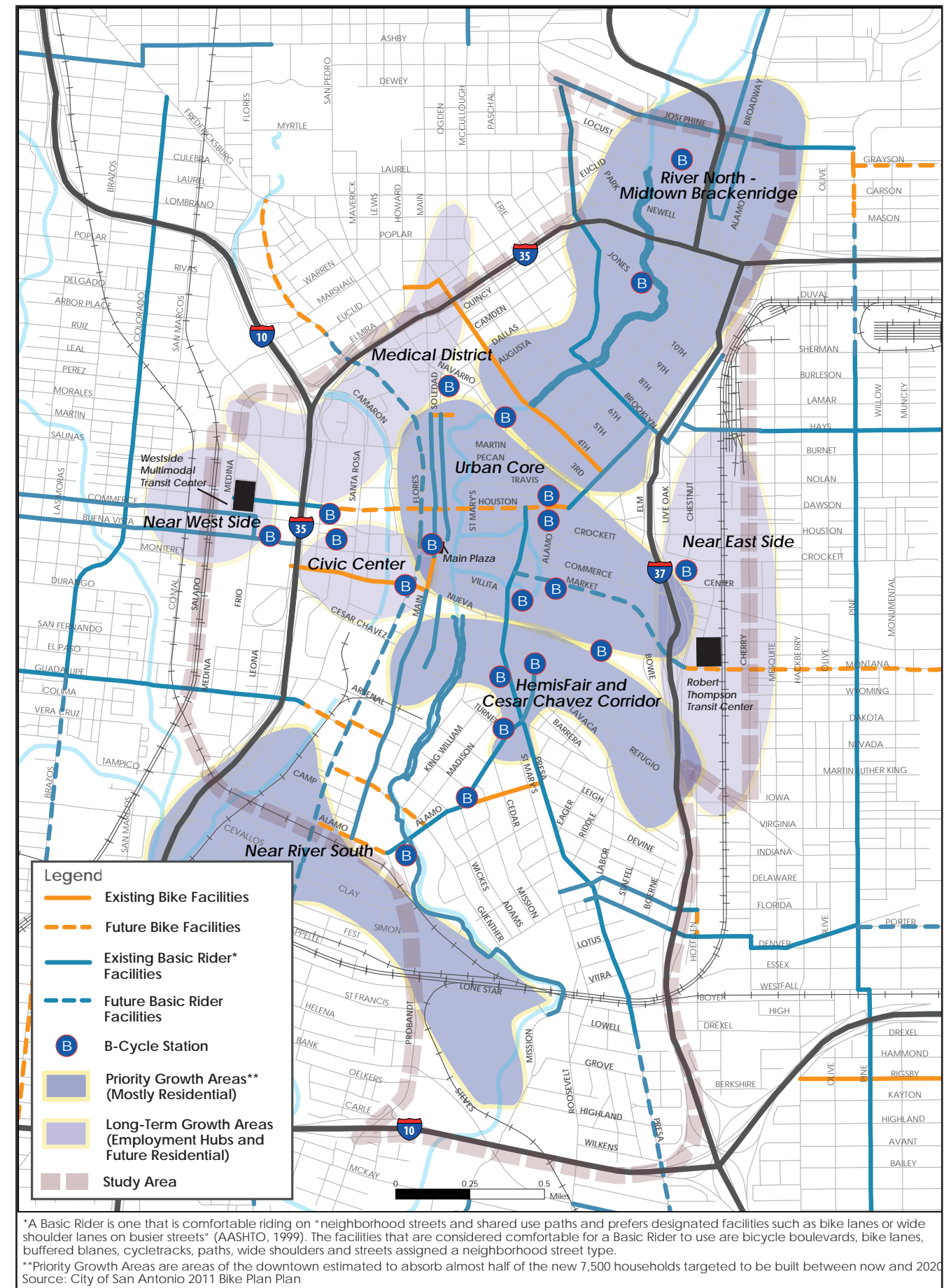


Figure 2-13 | Existing and Future Bicycle Facilities and B-Cycle Stations – Relation to Growth Areas

Bicycle Network

The basis for the future bike network in Downtown is the City of San Antonio's Recommended Bicycle Network, which was developed as part of the City's Bike Plan. This bike network, shown in **Figure 2-14** identifies existing and proposed bike facilities and the type of facility proposed.

While the City's recommended network identifies a network which provides connectivity throughout the downtown area, it was developed as a guide and did not include schematics or cross-sections of the proposed bicycle facilities; nor did it include a detailed traffic analysis for implementing those facilities. As part of the Downtown Transportation Study, the overall bike network and connectivity were studied along with the traffic analysis and design feasibility.

Modifications to the recommended network are proposed based on these results. **Figure 2-15** shows the proposed changes to the recommended bike network.

There are several streets the DTS proposes to remove from the City's current recommended bike network. Commerce and Market are identified as having bike lanes in the City's current bike plan, but are not recommended for bike facilities in the DTS. Because these streets are high volume, major arterials through Downtown with narrow lane widths, dense driveway spacing, and substantial pedestrian activity and transit service, it is not recommended that bicycles be directed to use Commerce and Market unless bike lanes can be provided. Bike lanes can be accommodated on Commerce and Market if the bus-only lanes are removed; however, the addition of bike lanes would preclude the construction of any substantial sidewalk widening on either street. Because of the nature of the roads, pedestrian enhancements are considered the highest priority for Commerce and Market. Proposed bike lanes on Nueva Street and signed routes on the lower volume Houston and Travis Streets provide parallel east-west bike routes and maintain the connectivity of the network if Commerce and Market are excluded. A more detailed description of the proposed



A cyclist rides on Commerce Street

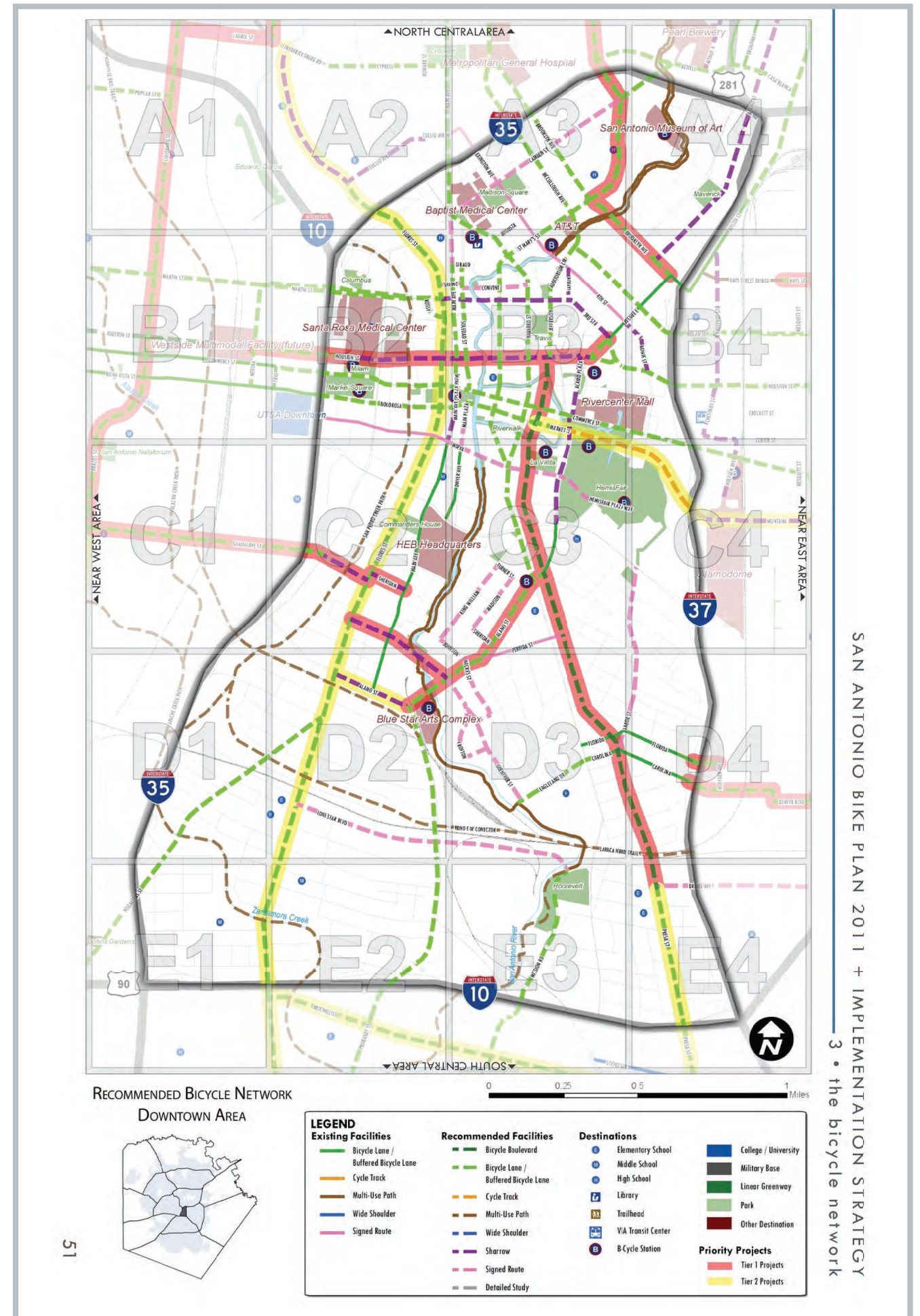
concepts for Commerce and Market can be found in **Section 3**.

The current bike plan also shows bike lanes on Flores Street within the Downtown area. Installing bike lanes would require reducing Flores Street from a four-lane roadway to a two-lane roadway. Because of the limited right-of-way, narrow sidewalks and travel lanes, adding bike lanes to Flores Street would eliminate turn lanes at intersections. If turn lanes or two travel lanes in each direction cannot be provided at signalized intersections, Flores will operate at LOS E or F in 2020. Therefore, bike lanes are not recommended on Flores Street. Because the existing lane widths are ten feet or less, a shared lane with sharrow markings is also not recommended. Bike lanes on Main Avenue and Soledad provide a nearby, parallel route.

Presa Street is listed as a bicycle boulevard in the current Bike Plan. A bicycle boulevard is a street that emphasizes bicycle traffic while discouraging vehicular traffic. However, at César Chávez, the center median restricts through movements on Presa, presenting an undesirable crossing for bikes. North of Market Street, Presa becomes a one-way southbound road, which limits accessibility and

continued, page 16

Figure 2-14
City of San Antonio Bike Plan



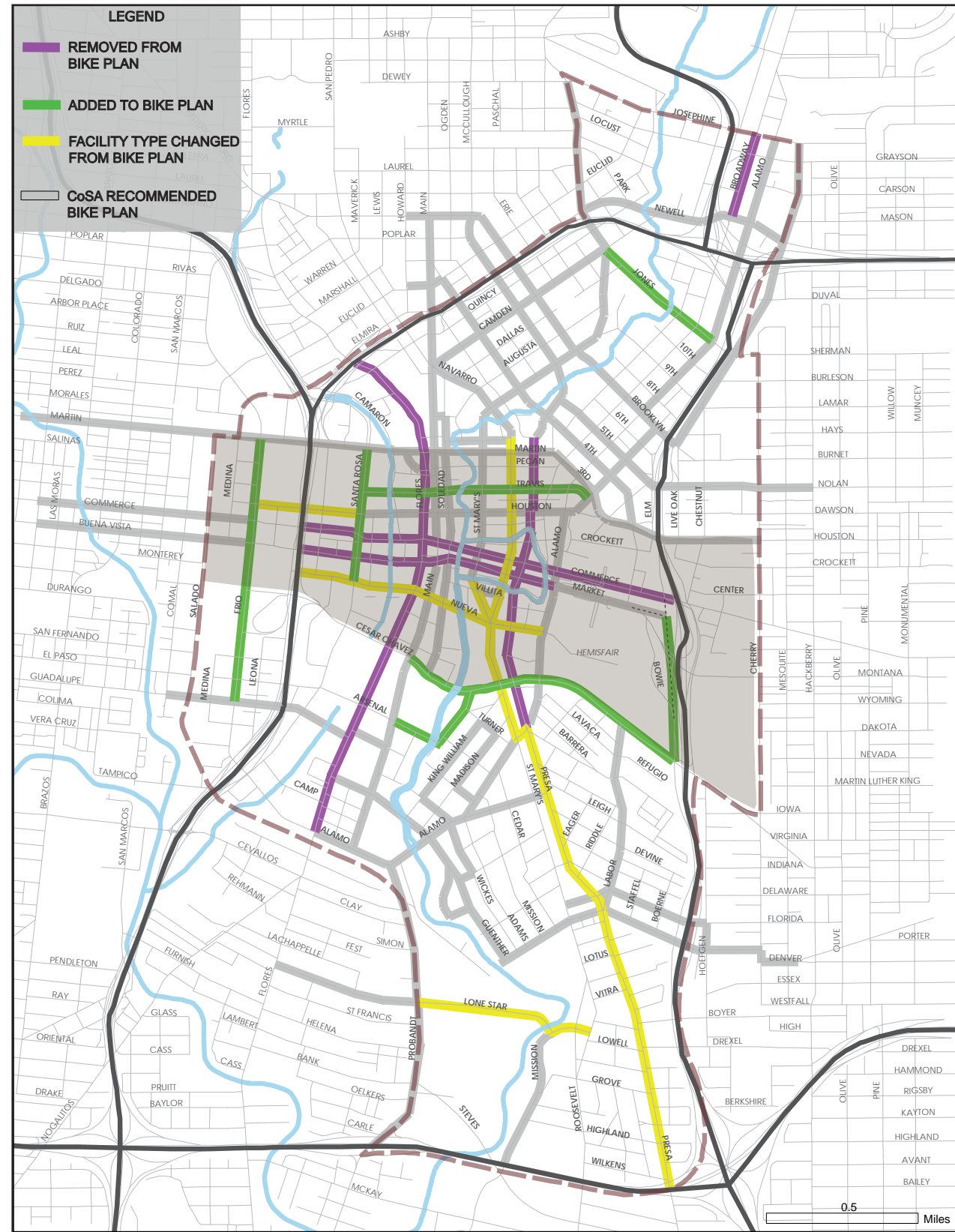


Figure 2-15 | Proposed Changes to COSA Bike Plan

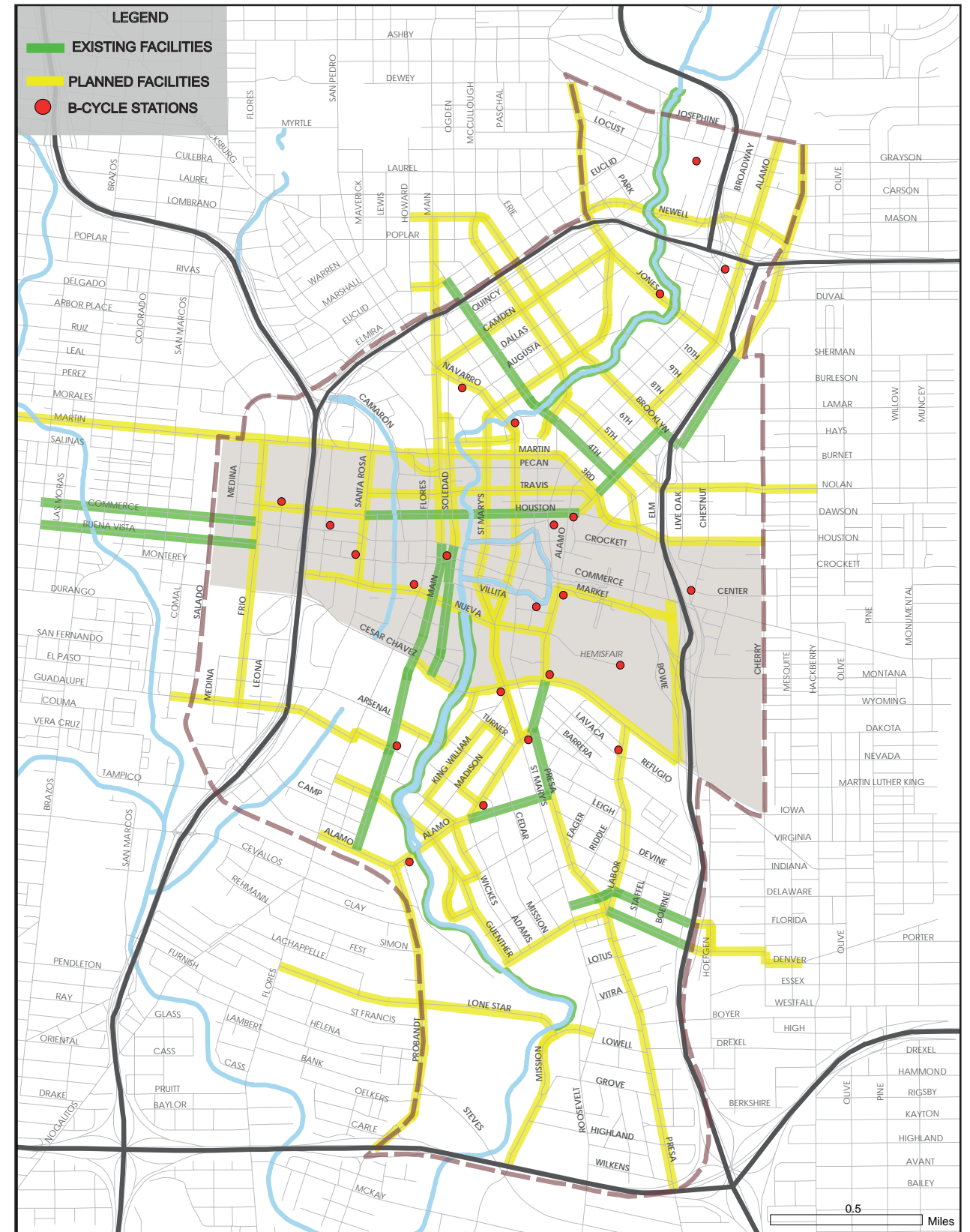


Figure 2-16 | Proposed Downtown Bike Network with DTS Recommendations

Bicycle Network, continued

connectivity for bikes. Also, the commercial nature of the Presa Street corridor promotes vehicular traffic, which is typically not the intent of a bicycle boulevard. Because of these factors, a bicycle boulevard on Presa Street is not recommended. Proposed bike facilities on St. Mary's and Navarro Streets provide a nearby parallel route to maintain connectivity.

Figure 2-16 shows the proposed Downtown bicycle network, incorporating the recommendations from this report. The City's current Bike Plan shows an absence of north-south bicycle facilities on the west side of Downtown. To increase connectivity in this area, wide outside lanes with sharrow markings are proposed on Frio Street, and buffered bike lanes are proposed on Santa Rosa between Nueva and Martin. Recommended projects in the Downtown Transportation Study in some cases reflect deviations from recommended projects in *San Antonio Bike Plan 2011 and Implementation Strategy*, which was adopted by ordinance as part of the City's Comprehensive Master Plan. If and when any of the projects in the Downtown Transportation Study are being considered for implementation, it is expected that a thorough review of the recommendation is reconciled with existing plans and based on a balance of priorities in the best interest of the City at that point in time.



VIA patrons waiting in shelter

DOWNTOWN TRANSIT

VIA's Future Bus Service Concept

Currently, many VIA bus passengers must transfer from one line to another in the Downtown core since the radial routes intersect along major east-west and north-south streets in Downtown. However, for 40% of passengers, who board buses in Downtown, it is neither their origin nor their destination. This situation results in many passengers waiting on narrow downtown sidewalks, exposed to the elements and not provided adequate accommodations. **Figure 2-17** shows current VIA networks and congested stops in Downtown. To improve the situation, VIA is planning to adjust routes similar to what is shown in **Figure 2-18**. The intent is to provide improved accommodation for transit passengers at two new transit centers, plus support desired development, while retaining historic character. Based on this planned routing change, VIA has prepared a map indicating where bus boardings will be concentrated in the future. **Figure 2-19** shows how boardings will shift out of the Downtown core area and to the north, south, and west, in comparison to **Figure 2-20** illustrating current boardings.



Bus stop on St. Marys Street

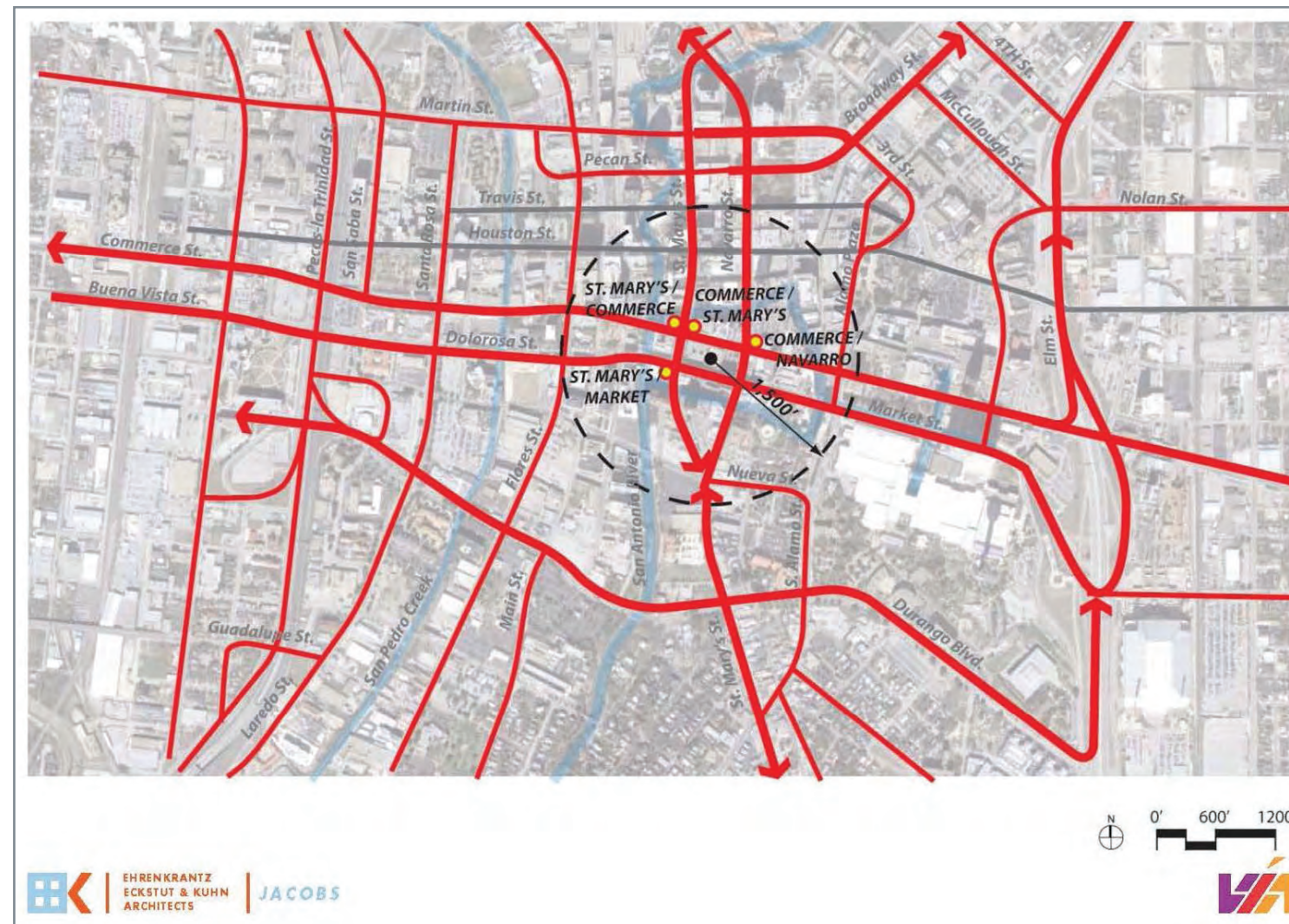


Figure 2-17
Congested Transit Transfer Areas

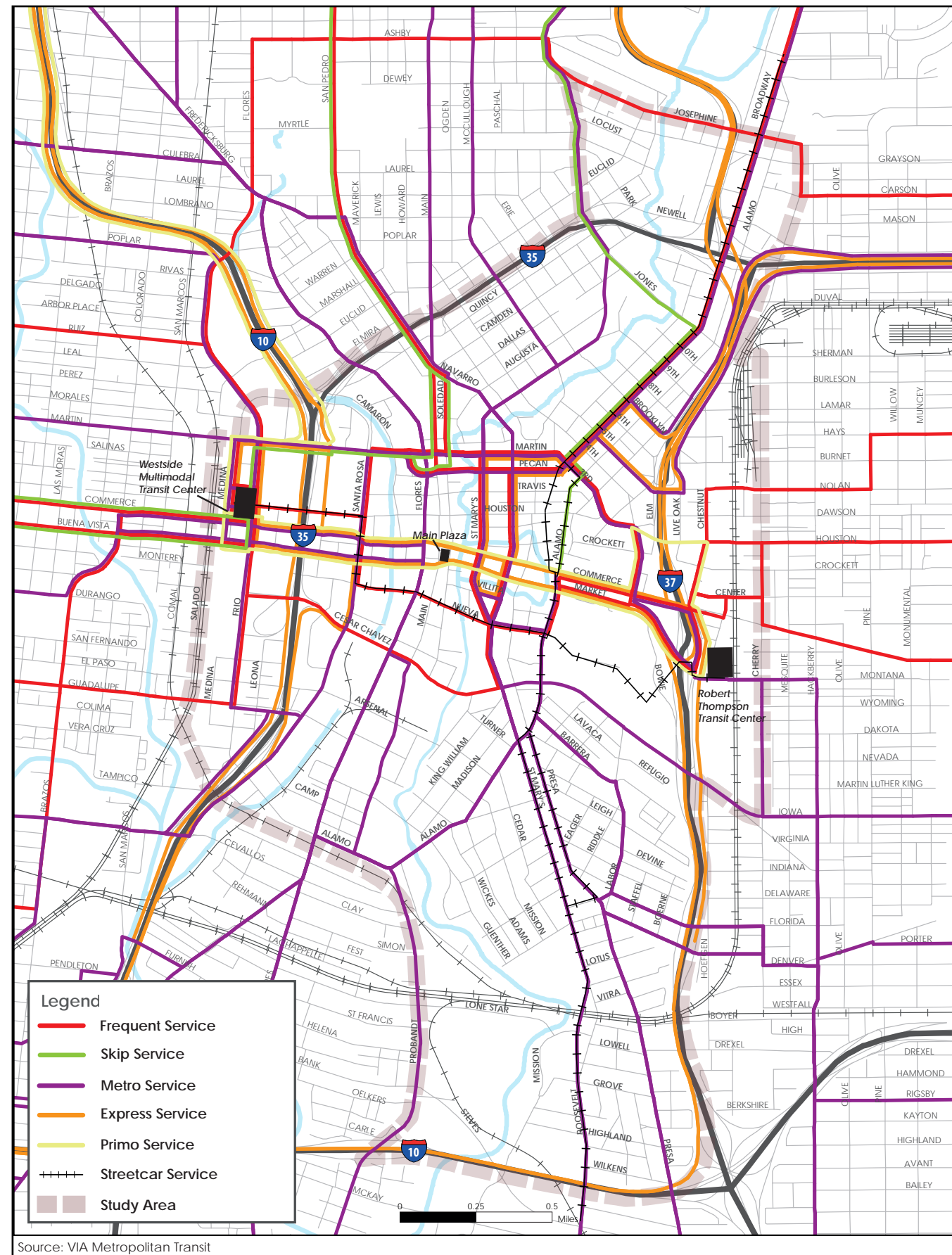
Source: VIA

Growth Area Accessibility

With the expectation that additional residential areas will be developed in the priority growth areas, it is important to examine the level of access to future transit service.

Figures 2-19 and 2-20 show the concentration of bus stops in the downtown area, indicating the number of bus stops within a quarter mile walk of a given location, for the current and future bus networks. They also indicate current and projected boardings with those networks, showing how the distribution of boardings changes around the downtown area with VIA's future bus service concept. Figure 2-21 shows the relationship of the current transit routes to the priority growth areas, and Figure 2-22 shows the future transit routes.

Service to the Urban Core and HemisFair César Chávez areas is currently very good. The River North and Near River South areas, in contrast, have more limited transit service. Transit access to these areas will need to remain a priority for VIA, as well as ensuring walking and bicycling routes provide the connections needed to allow residents to travel the distances needed to reach transit stops.



Source: VIA Metropolitan Transit

Figure 2-18: Proposed Future VIA Transit Routing



Buses on Market Street

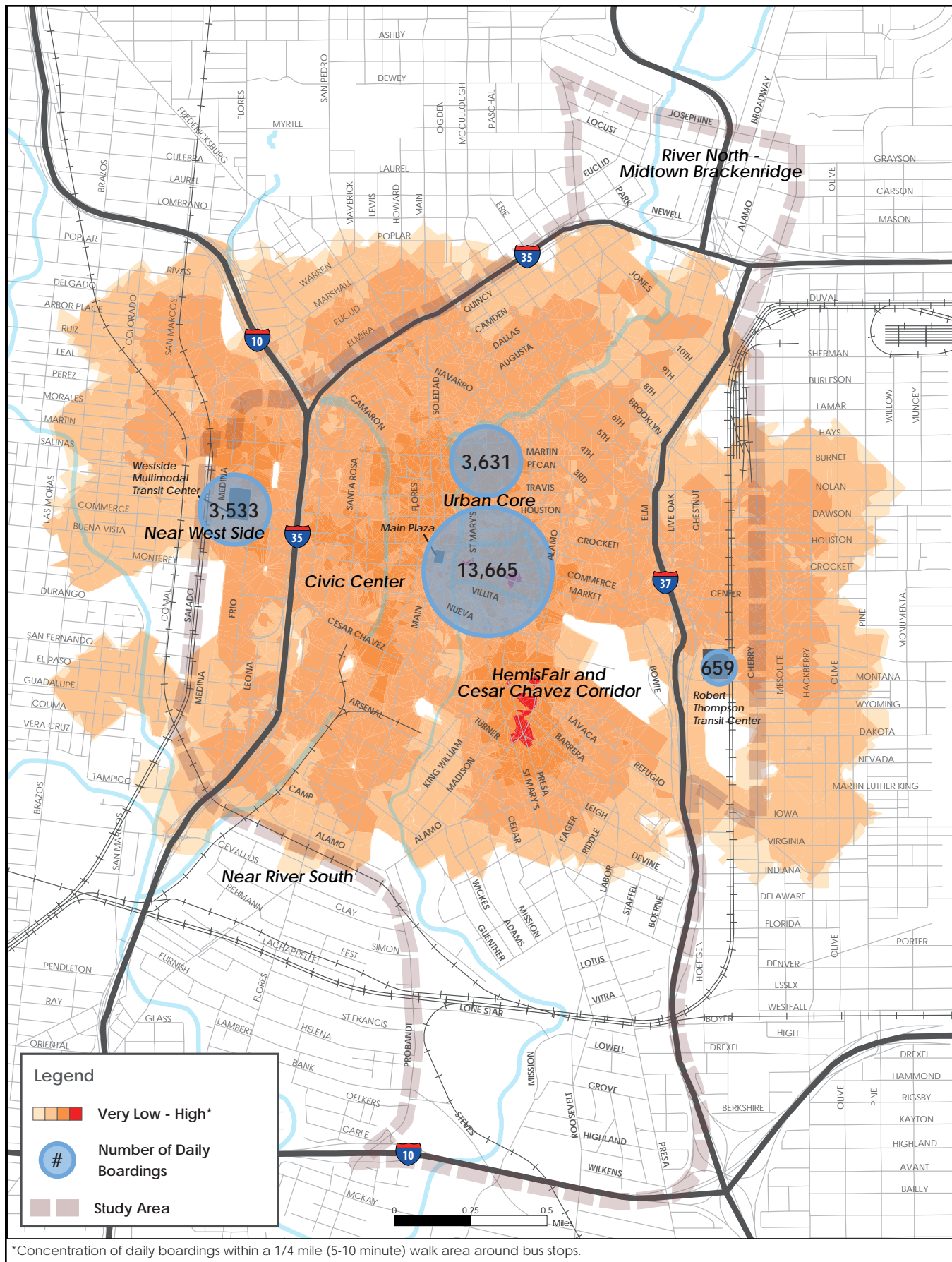


Figure 2-19: Existing VIA Service and Walking Distance to VIA Bus Stops/Daily Boardings

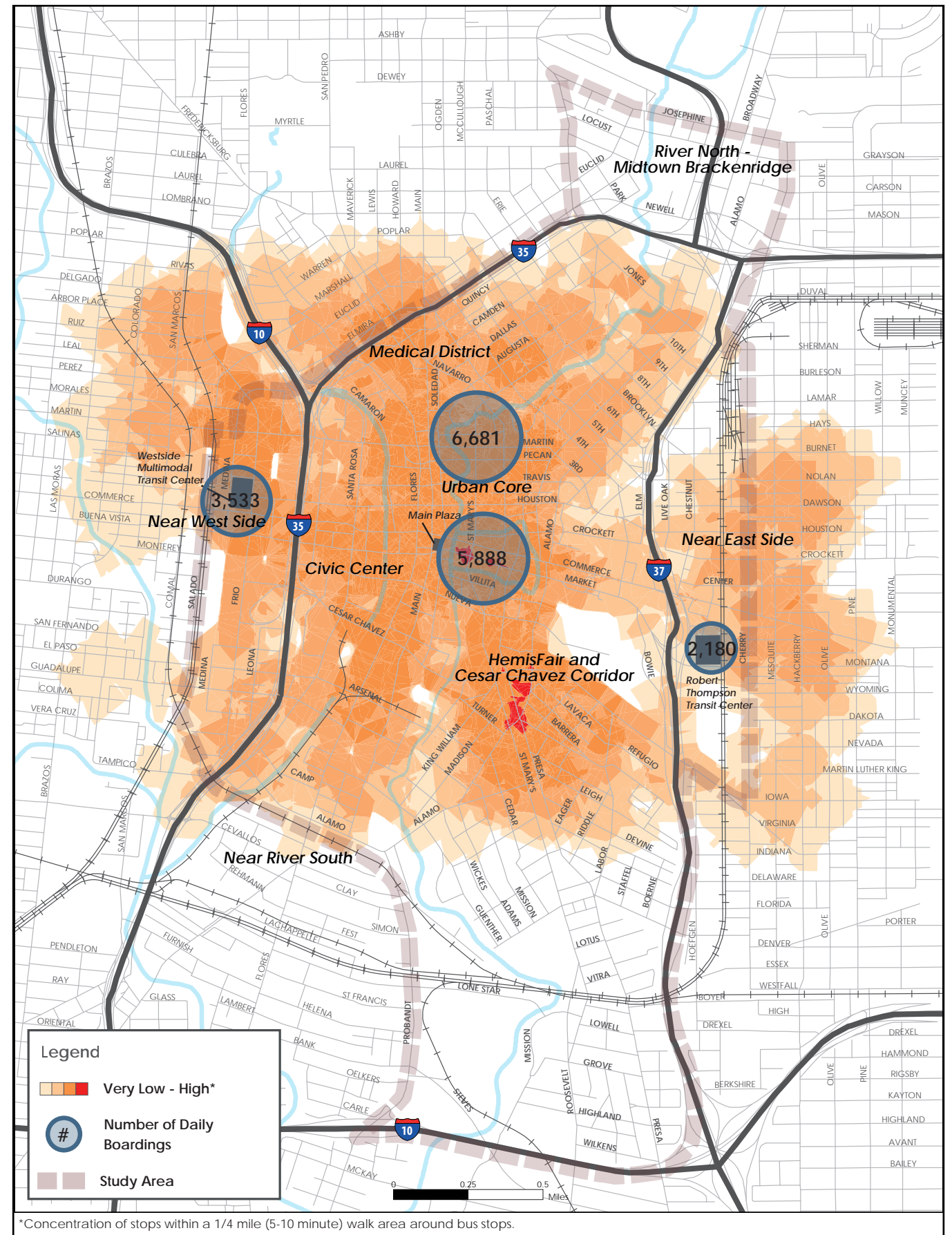


Figure 2-20: Future VIA Bus Service and Walking Distance to Bus Stops/Daily Boardings

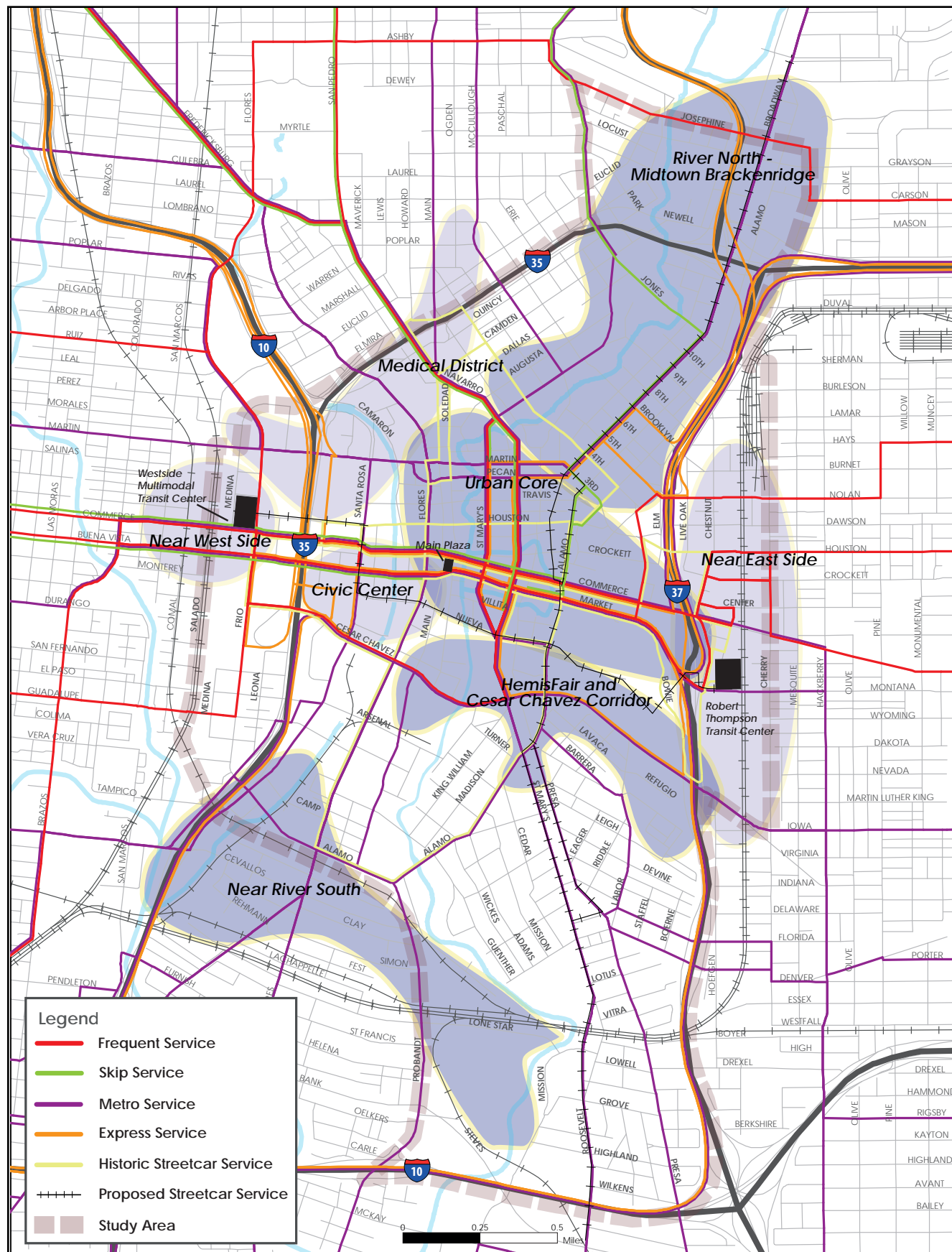


Figure 2-21: Existing VIA Transit Service – Relation to Growth Areas

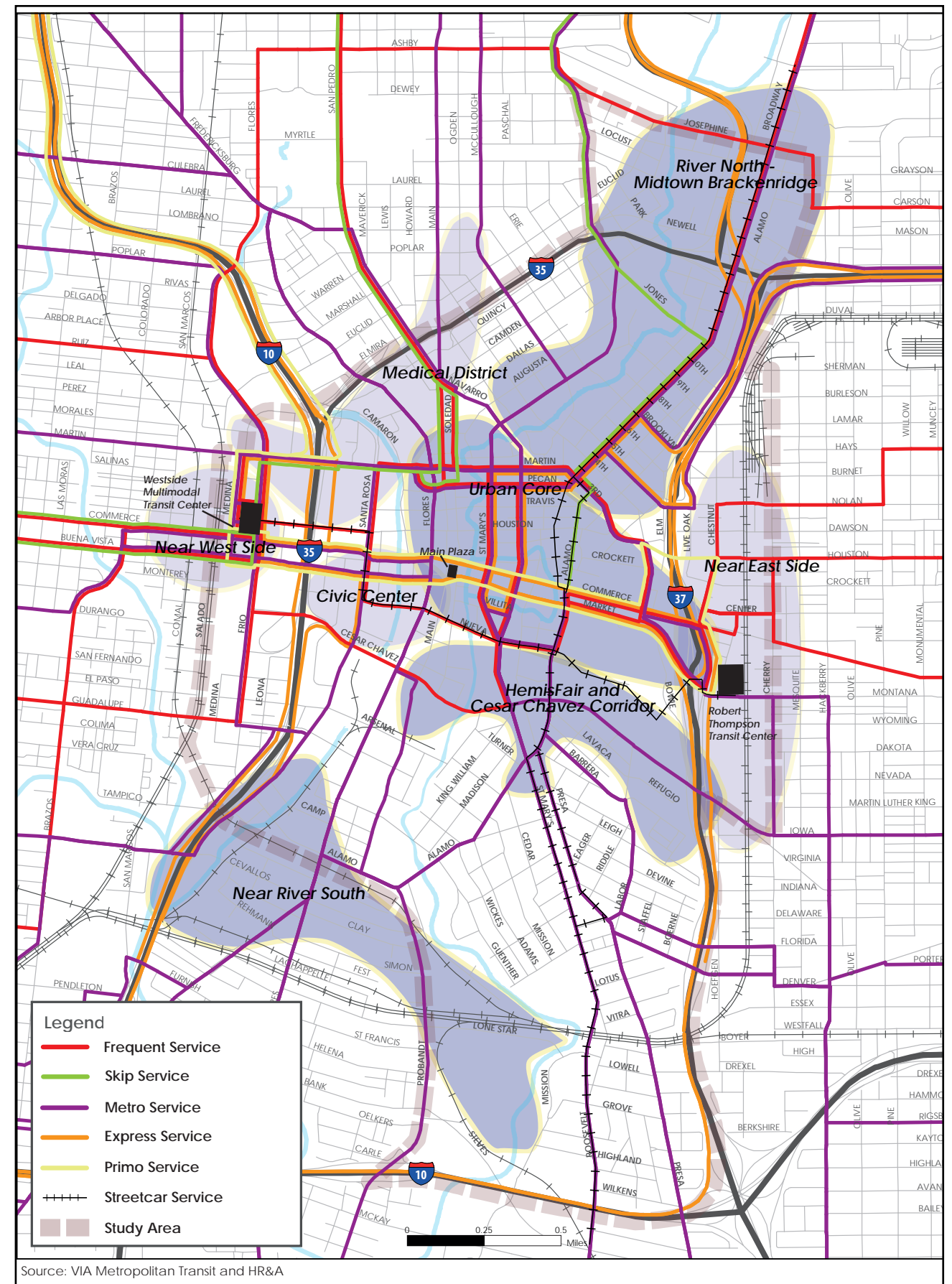


Figure 2-22: Future VIA Service and Facilities – Relation to Growth Areas

DRIVING IN DOWNTOWN

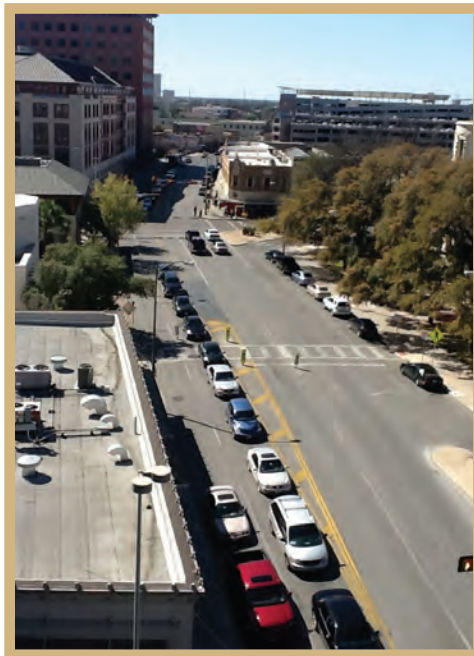
The primary streets in Downtown include Commerce, Market, St. Mary's, Navarro, César Chávez, and Santa Rosa. As part of this study, the signalized intersections within the downtown area were analyzed in the Existing condition, the future 2020 No Build condition, and the future 2020 Build condition. **Figure 2-23** shows the location of all intersections analyzed and their level of service in 2020 for the No Build condition.

The No Build condition consists of projected 2020 traffic volumes with the existing intersection geometry and signal operation. The Build condition consists of projected 2020 traffic volumes and the proposed improvement concepts identified in this report. The traffic signal timing was also optimized throughout the Downtown network for the Build condition.



St. Mary's at Market Street

The projected 2020 volumes were developed using the MPO model. The increase in traffic volumes varies in different areas of Downtown depending on the level of growth identified. While some streets only experience minor traffic growth, other streets, such as those on the south side of Downtown can show increases in traffic of 40 to 60 percent, or more. The traffic volumes were unchanged between the No Build and Build analyses. No reduction in traffic volumes was applied to reflect the shift from vehicles to alternative modes. **Figure 2-23** and **Figure 2-24** (NEXT PAGE) show the levels of service at the intersections analyzed for the No Build and Build conditions.



View of Flores Street at Commerce

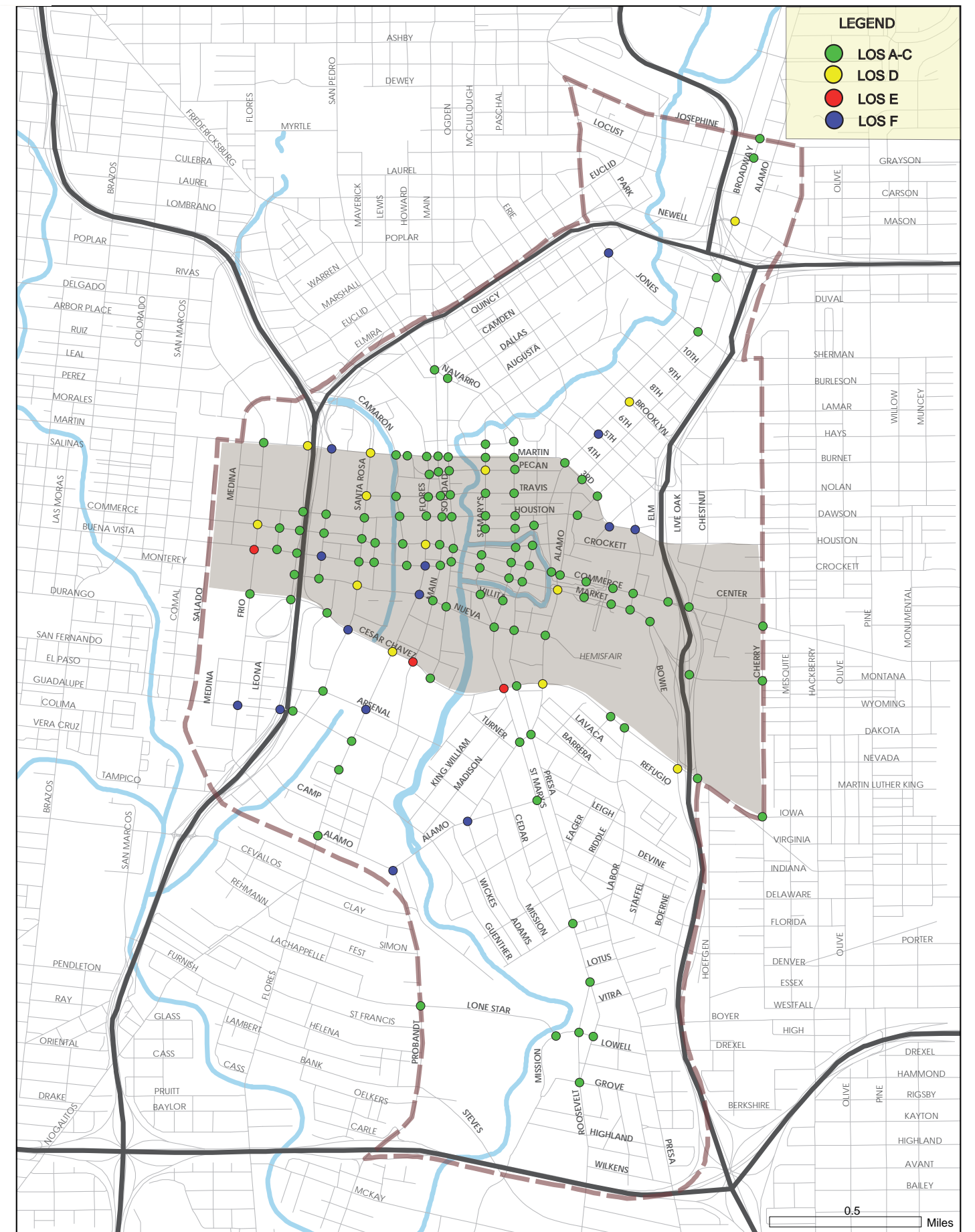
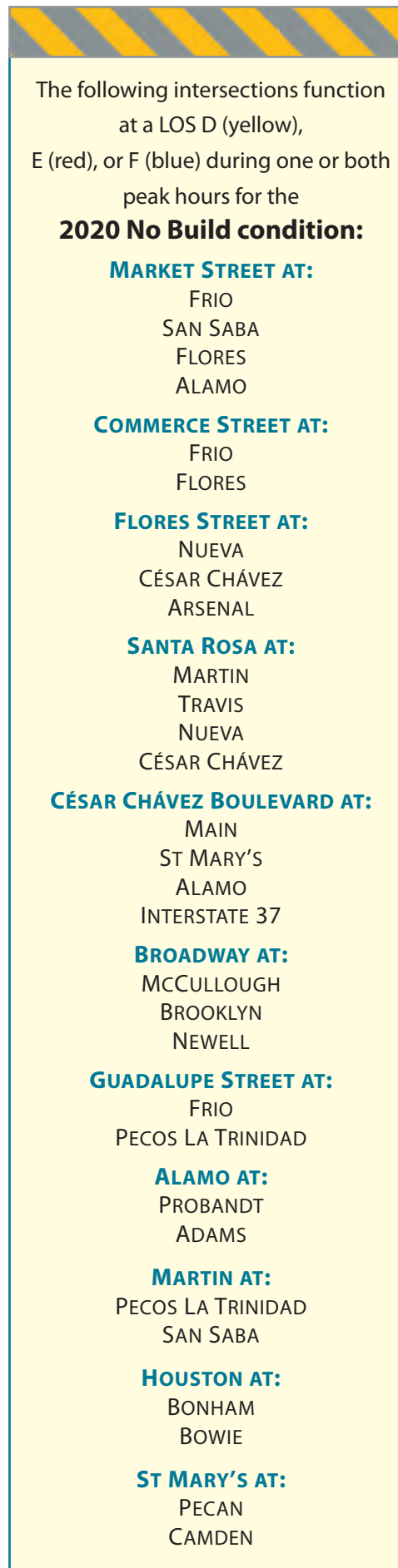
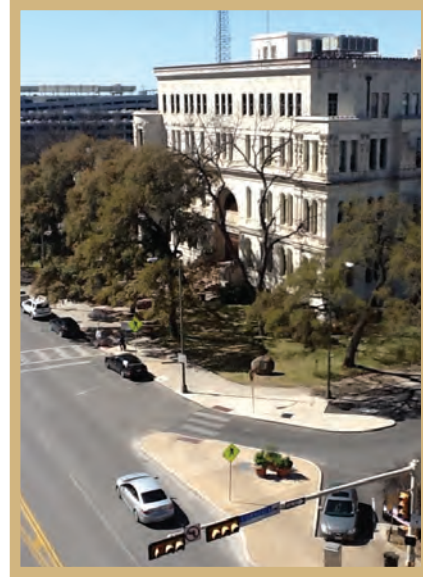


Figure 2-23: No Build Level of Service Results

DRIVING IN DOWNTOWN CONTINUED

Most of the downtown intersections show acceptable levels of service for the No Build and Build conditions. None of the proposed improvements cause a worsening of the level of service compared to what it would be in year 2020 without the improvements in place.

As residential and workplace populations increase Downtown, shifts from auto to transit, walking or biking modes will take place. Complete streets encourage that shift and provide ways to accommodate growth in downtowns within the R.O.W. constraints.



Flores Street and City Hall

Improvements in addition to signal timing optimization were needed at the following intersections to improve the Build condition levels of service:

St Mary's at Camden: Roundabout

Houston at Bowie: Roundabout

Houston at 3rd: Roundabout

Flores at Commerce: Remove exclusive pedestrian phase

Flores at Market: Remove exclusive pedestrian phase

Flores at Nueva: Remove exclusive pedestrian phase

Flores at Arsenal: Create eastbound right-turn lane by restricting parking

Alamo at César Chávez: Construct westbound right-turn lane



Houston Street

The following intersections function at a LOS D (yellow), E (red), or F (blue) during one or both peak hours for the **2020 Build condition.**

MARKET STREET AT:
FRIO

FLORES STREET AT:
NUEVA
ARSENAL
ALAMO

SANTA ROSA AT:
MARTIN
NUEVA
CÉSAR CHÁVEZ

CÉSAR CHÁVEZ BOULEVARD AT:
MAIN
ST MARY'S
ALAMO
INTERSTATE 37

BROADWAY AT:
NEWELL
JOSEPHINE

GUADALUPE STREET AT:
FRIO
PECOS LA TRINIDAD

ALAMO AT:
PROBANDT

MARTIN AT:
SAN SABA

ST. MARY'S AT:
PECAN

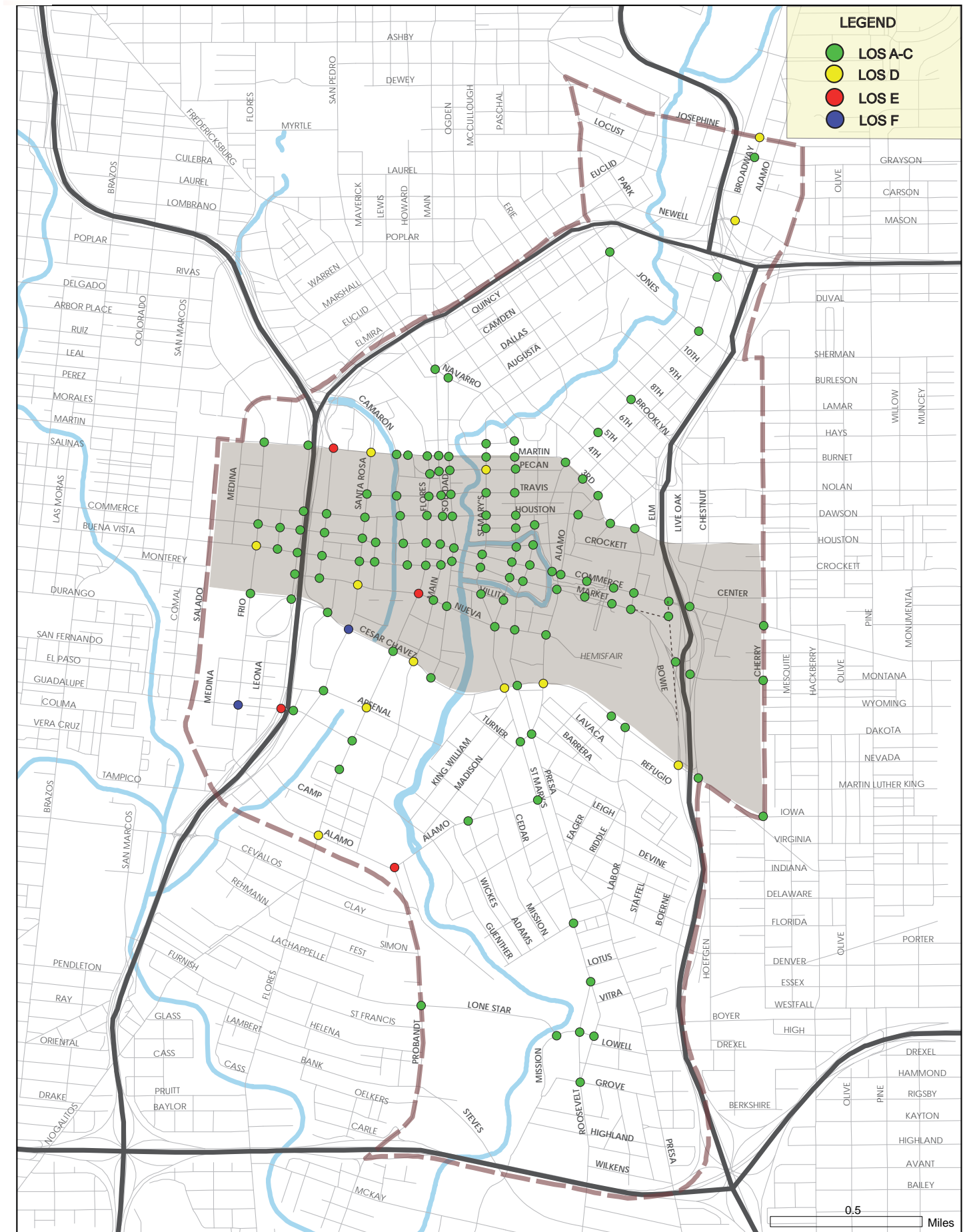


Figure 2-24: Build Level of Service Results



SECTION THREE: RECOMMENDATIONS OF THE DOWNTOWN TRANSPORTATION STUDY

As stated in the introduction in **Section 1**, the Downtown Transportation Study (DTS) is unique for San Antonio in that the transportation improvements play an important role in achieving SA 2020’s goals for economic development, placemaking, arts and culture, community safety, natural resources, healthy families, and quality of life.

The DTS’ multi-faceted recommendations are guided by the vision in SA 2020 and the formula for successful Downtown growth in the Strategic Framework Plan for the Center City – plans that foresee the desired end state, establish targets to reach, and lay down the building blocks for implementing the vision. The DTS places another course of blocks on the foundation for the future. The following quote from SA 2020’s Downtown Development vision acknowledges the intrinsic bond between the cultural, economic, and social vibrancy of a downtown and its streets:

“**Great cities have great downtowns.** And the linkages between a vibrant, energetic and growing **downtown** and an inviting and efficient **transportation** system are **undeniable**. Great downtowns offer culture, convenience, and a variety of transportation options for getting in and out of center cities.”

– SA 2020

BENEFITS OF THE DTS RECOMMENDED PROJECTS

The DTS recommendations, first and foremost, improve transportation safety, and access to, and circulating within, Downtown by all users. By simply following the principles of “context sensitivity, design flexibility, and accommodation of all users,” the recommended improvements present opportunities for expanding their functionality. Many of the benefits listed below apply to multiple recommendations:

- Improve safety for all users;
- Enhance accessibility to all of the Downtown districts and neighborhoods;
- Improve the clarity and intuitiveness of getting to Downtown destinations;
- Invest in the economic success of adjacent properties with quality space within the public right-of-way;
- Use the public right-of-way to provide the infrastructure for special places and community engagement;
- Improve the marketability of Downtown businesses;
- Improve vehicular mobility;
- Serve as a catalyst for additional improvements in the surrounding district or neighborhood;
- Foster public / private partnerships to achieve integrated land use development and transportation projects;
- Make possible a car-free Downtown lifestyle for those residents who seek it;
- Expand the transportation options for Downtown workers, residents, and visitors; and
- Promote healthy living.

BROADLY DEFINING THE RECOMMENDATIONS

Because the recommended improvements in the San Antonio DTS are designed to meet the integrated goals of SA 2020, the traditional categories of transportation improvements (i.e., access, mobility, capacity enhancement, and safety) inadequately describe the multiple purposes and the catalytic nature of the recommendations. Therefore, the improvements are placed into categories that signify an overall design emphasis, but also describe the overlapping and complementary transportation and non-transportation functions of the improvements.

THE FIVE CATEGORIES OF IMPROVEMENTS

Five fundamental project categories guide and organize the improvements recommended in the DTS. These categories were established early in the study to provide a simple means of describing the multiple benefits of the candidate short-range capital improvements for the 2012 Bond Initiative. The categories are goal-driven (as reflected in the titles) and organized around the topics of accessibility, safety and comfort, public amenity, and economic development.

The categories define functions beyond the traditional mobility and land access functions; a feature that makes the DTS a unique transportation plan. The categories combine multimodal transportation function with elements that improve the surrounding context, support the City’s economic goals, and provide the infrastructure for the creation of special places. The categories are: **Getting to Downtown, Getting Around Downtown, Placemaking, Making Better Streets, and Enabling Downtown Growth**. **Table 3-1** describes the functions and emphasis of each improvement category.

Table 3-1 Downtown Transportation Study Improvement Categories

Improvement Category	Emphasis and Types of Improvements
Getting to Downtown	DOWNTOWN ACCESS: Freeway access, gateway design, inter-modal connections.
Getting Around Downtown	DOWNTOWN CIRCULATION: Changes in street operations, intersection configuration, signalization, route clarity, pedestrian and bike facilities improvements.
Placemaking	DESIGN FOR SPECIAL STREETS: Unique elements on designated streets. Custom furnishings, lighting, gathering places, landscape, outdoor dining, connections to the River Walk and landmarks, special events and markets.
Making Better Streets	STREETSCAPE ESSENTIALS: Sidewalks, lighting, plantings, furnishings, parking systems, signage. Typologies to match different functions (e.g. residential, commercial, etc.)
Enabling Downtown Growth	IMPROVEMENTS FOR KEY DEVELOPMENT OPPORTUNITIES: New access points, route clarity, multimodal connections, capacity and/or operational improvements to serve new development.

THE PRIMARY COMPONENTS OF THE DTS

This section outlines the three primary components of the DTS recommendations.

NEAR-TERM CAPITAL PROJECTS (2012 BOND INITIATIVE PROJECTS)

The initial set of downtown roadway improvement projects are scheduled to be funded with the 2012 Bond. The Bond program has allocated \$40 million for downtown roadway improvement projects. The projects chosen satisfy most or all of the improvement categories identified in **Table 3-1** and are located in areas with potential for economic growth and development. An entire list containing all of the DTS projects is on the following page. Detailed descriptions of the projects can be found in the following sections. For some projects, such as the improvements to Commerce Street, the Bond program limits represent only a segment of the concepts described in the following sections. The Bond program limits were chosen to keep the costs within the \$40 million budget and target the sections of the roadways with the greatest potential for near-term economic development.

The following projects were selected for inclusion in the 2012 Bond Program:

- **Market Street Realignment: Bowie to Interstate 37**
- **Frio Street: César Chávez to Houston**
- **Commerce Street: Santa Rosa to St. Mary's**
- **Main Avenue & Soledad: Commerce to Martin**
- **San Pedro, Main, Navarro, and Soledad intersections**



Commerce Street Concept

Market Street Realignment

The Market Street Realignment project consists of realigning Market Street to run parallel to Commerce Street and to create a new IH-37 Frontage Road that extends from Commerce, south to César Chávez Boulevard. The newly realigned Market Street would form a T-type intersection with the Frontage Road and would be signalized. Construction of this project is funded by the 2012 Bond Program. The design is being completed under a current CIMS project and has not been finalized. An added benefit of the Market Street Realignment project is the improved connectivity with the East Side. The realignment will provide a new connection from the southbound exit ramp from IH-37 at Commerce. Also, Montana is being considered for two-way operation as part of the project which would provide an additional connection from Commerce and Market Street to the East Side.

Frio Street: César Chávez to Houston

The proposed concept for Frio Street consists of reducing the inside lane widths and, if necessary, the median/center turn lane, to provide a wide outside lane with sharrow markings. Additional improvements include street plantings and furnishings, pedestrian lighting, wider sidewalks and improved pedestrian crossings. While not listed on the City's Bike Plan, bike facilities were deemed important on Frio because of its proximity to UTSA and the Westside Multimodal Transit Center and because of the absence of north-south bike routes on the west side of Downtown.

Commerce Street: Santa Rosa to St. Mary's

Commerce Street is one of the most prominent streets in Downtown. In many cases it is the street of entry offering a first impression to visitors and tourists. It provides access to major destinations and also serves as an east-west connector. The sidewalks of Commerce Street serve large numbers of pedestrians and transit users. In order to improve the quality of other modes of transportation, and to transform the appearance of Commerce Street, this study proposes to remove the bus-only lane and utilize this space to incorporate elements that improve the public realm and encourage pedestrian activity. By removing the bus lane, the sidewalks can be widened to accommodate pedestrians and to offer amenities such as street trees, benches and café seating, and lighting. The outside lane will be widened to 12 feet to better accommodate bus traffic.

Main Avenue and Soledad: Commerce to Martin

Main Avenue and Soledad are a one-way pair north of Commerce Street. Volumes on both streets have significantly reduced since Main Plaza was constructed and neither street now connects south of Commerce. The existing traffic lanes can be used for other purposes. This study proposes to use the space to install bike lanes, widen the sidewalks, add street trees, curb extensions, lighting and streetscaping elements and provide both reverse angle and parallel parking. These improvements will change the character of the public realm and will encourage street activity and commerce in the area by inviting pedestrian traffic and providing parking for nearby retail and other services.

San Pedro, Main, Navarro, and Soledad Intersections

The intersection of San Pedro, Main, Navarro, and Soledad is a gateway intersection into Downtown. The intersection is located in north Downtown, next to the Central Library. The existing configuration contains confusing channelization, restricted turning movements, offset travel paths across the intersection and a bus contra-flow lane creating a confusing intersection that can greatly impede wayfinding in northern downtown.

Four options were developed to improve the intersection. Three options are conventional intersections which modify the channelization, move the approaches closer to the center of the intersection and provide better intersection alignments. The fourth option is a roundabout which will require additional right-of-way. All four options result in additional green space around the intersection creating viable locations for **place-making**, enhancing the area and incorporating the library and other nearby uses.



Roundabout Concept proposed for intersection of San Pedro, Main, Navarro, and Soledad

Project Number of Complete Bond Project
 GETTING AROUND DOWNTOWN
 GETTING BETTER STREETS
 MAKING BETTER STREETS
 ENABLING DOWNTOWN GROWTH

Project		Limits	FUNDED PROJECTS THROUGH BOND PROGRAM OR HEMISFAIR PARK										Project Scope	Street Typology
1	X	Commerce	Bowie to Santa Rosa	X	X	X	X	X	X	X	X	Remove bus-only lane. Widen sidewalks, street improvements, pedestrian improvements, lighting, plantings, furnishings, signage, River Walk gateways.	Principal Route/Special Street	
2	X	Market	IH 37 to Santa Rosa	X	X	X	X	X	X	X	X	Commerce Street - Bond project limits are from Santa Rosa to St. Mary's Market Street - Bowie St. to IH-37; Market Street Realignment and HemisFair Complete Streets; reduce from 4 lanes to 3 lanes and add bike lane on south side with stormwater planters on both sides. New Frontage Road/Tower of America Way - Market Street Realignment and HemisFair Complete Streets - adding two-way bike lane	Principal Route/Special Street	
3A	X	Main Avenue	Commerce to Martin	X	X	X	X	X	X	X	X	Remove lanes to allow for reverse-angle parking, bike lanes, wider sidewalks, street trees, streetscaping, curb extensions, etc.	Downtown Activity	
3B	X	Soledad	Commerce to Martin	X	X	X	X	X	X	X	X	Remove lanes to allow for reverse-angle parking, bike lanes, wider sidewalks, street trees, streetscaping, curb extensions, etc.	Downtown Activity	
4	X	San Pedro, Main, Navarro, and Soledad Intersection		X	X	X	X	X	X	X	X	Gateway design, intersection configuration, wayfinding. Four options developed to simplify intersection and reduce driver confusion.	Gateway Int on Downtown Lifestyle and Principal Rte	
5	X	Frio	Guadalupe to Martin	X	X	X	X	X	X	X	X	Bond project limits are from Houston to Cesar Chavez. Street improvements, reduce inside lane width and median width where necessary to widen outside lane for sharrow; pedestrian improvements, plantings, furnishings, improve pedestrian crossings	Principal Rte/Downtown Essential	
6		Alamo Street	Market to Presa	X	X	X	X	X	X	X	X	Market St. to Cesar Chavez - HemisFair Complete Streets; change cross section from 5/6 lanes with median to multi-way boulevard with three main lanes and two local access roads with sharrow, parking and wide sidewalks. Cesar Chavez to Presa - HemisFair Complete Streets; reduce lane width, maintain bike lanes, add on-street parking to west side with parklet options streetscaping, lighting, sidewalk improvements	Downtown Activity/Special Street	
7		Cesar Chavez	IH 37 to Main	X	X	X	X	X	X	X	X	IH-37 to Alamo - HemisFair Complete Streets; Add on-street parking/stormwater planters with bike lanes and buffers between parking and curb (cycle tracks) Alamo to River - HemisFair Complete Streets; ; Maintain 4 travel lanes, add multi-use path both sides River to Main Avenue - Add 15 to 15 foot outside lane with sharrow; reduce posted speed along Cesar Chavez to 30 MPH Street improvements, pedestrian improvements, plantings, furnishings, lighting.	Principal Route	
8		Nueva	IH-35 to Alamo	X	X	X	X	X	X	X	X	Alamo to Presa Street - HemisFair Complete Streets Project - reduce to two lanes and add reverse-angle parking along both sides. Presa to Pecos La Trinidad - Reduce from 4 lanes to 2 lanes; adding bike lanes to both sides; Except Flores to Main Ave two wide lanes today, reduce lane widths; add bike lanes. Improve sidewalks where possible, lighting, streetscaping. This improvement is not compatible with the VIA Streetcar if the alignment is on Nueva.	Downtown Activity	
NON-FUNDED PROJECTS														
9A		Houston, Bowie, Star Intersection		X	X	X	X	X	X	X	X	Intersection configuration (roundabout), wayfinding, gateway design	Gateway Intersection on Principal Rte	
9B		Houston, 3rd, and Bonham Intersection		X	X	X	X	X	X	X	X	Gateway design, intersection configuration (roundabout), wayfinding. Convert Houston from one-way eastbound to two-way between Bonham and Alamo Plaza.	Gateway Intersection on Downtown Activity & Principal Rtes	
10		St Mary's, Navarro, and Nueva Intersection		X	X	X	X	X	X	X	X	Gateway design, intersection configuration, wayfinding. Can provide roundabout with and without streetcar.	Gateway Int on Special Streets & Principal Rtes	
11		Alamo, Commerce, Losoya Intesection - The Torch		X	X	X	X	X	X	X	X	Gateway design, intersection configuration, wayfinding. Four options for reconfiguring intersection and improving pedestrian crossings. Several options add plaza space.	Gateway Int on Special Streets & Principal Rtes	
12		Jones, Camden, St Mary's Intersection		X	X	X	X	X	X	X	X	Gateway design, intersection configuration (roundabout), wayfinding, sight distance/safety issues.	Gateway Int on Special Streets & Principal Rtes	
13		Santa Rosa	Martin to Cesar Chavez	X	X	X	X	X	X	X	X	Streetscaping improvements, plantings, furnishings, and lighting. Martin to Commerce - reduce from 6 lanes to 4 lanes to add bike lanes with 3 foot buffer on right and inset parking with bulbouts. Commerce to Market - reduce lane widths to add wide outside lanes with sharrow Market to Nueva - reduce from 6 lanes to 4 lanes to add bike lanes with 3 foot buffer on left Nueva to Cesar Chavez - no change Cesar Chavez to Arsenal - City project in place showing lane reduction from 3 lanes to 2 lanes NB to align intersection	Principal Rte/Downtown Lifestyle	
14		St Mary's	Villita to Convent	X	X	X	X	X	X	X	X	Remove bus-only lane, widen sidewalk on east side, add bike lane on east side, plantings, furnishings, lighting	Principal Rte/Downtown Activity	
15		Navarro	Villita to Convent	X	X	X	X	X	X	X	X	Remove bus-only lane, widen sidewalk and add on-street parking with curb extensions on the east side, widen the lane with sharrow on west side, add plantings, furnishings, lighting. Provide wider curb extensions at bus stop locations.	Principal Rte/Downtown Activity	
16		Flores	Market/ Dolorosa	X	X	X	X	X	X	X	X	Street improvements, on-street parking, pedestrian improvements, plantings, furnishings, lighting. Old Guilbeau to Stumberg - reduce from 3 lanes to 2 lanes with center turn lane or median with midblock pedestrian crossing, curb bulbouts and on-street parking. Stumberg to Nueva - reduce from 4 lanes to 3 lanes with parking on the east side. Nueva to Dolerosa/Market - 3 lanes with parking on both sides.	Principal Rte/Downtown Lifestyle	
17A		Martin/3rd/Pecan/Houston	IH-37 to Frio	X	X	X	X	X	X	X	X	Wayfinding, branding to eliminate driver confusion and identify east-west route.	Principal Rte	
17B		Pecan St (realignment)	Cameron to Flores	X	X	X	X	X	X	X	X	Improve alignment of eastbound Pecan Street at Martin Street	Principal Rte	
18		Broadway	3rd to Josephine	X	X	X	X	X	X	X	X	Incorporate River North Master Plan improvements; Remove existing bike lanes; Reduce from 6 lanes to 5 lanes, widen sidewalks and add on-street parking during non peak hours; If streetcar - on-street parking is removed; streetscaping improvements	Principal Rte/Downtown Lifestyle	
19		Lonestar	Roosevelt to Probandt	X	X	X	X	X	X	X	X	Improve sidewalks, add lighting, add sharrow. Do not add curbs, consider stormwater management opportunities. Improve the connection to the River.	Downtown Essential	
20		Probandt	Lonestar to Alamo	X	X	X	X	X	X	X	X	restripe to add bike lanes, improve sidewalks, complete gaps where sidewalks missing, add lighting, incorporate medians in place of TWLTL where possible.	Downtown Essential	
21		Jones	Alamo to Camden	X	X	X	X	X	X	X	X	Reduce from 4 lanes to 2 lanes or reduce width; add bike lanes to both sides; add reverse-angle parking between Broadway and Avenue B. lighting, streetscaping	Special Street & Downtown Lifestyle	
22		St Mary's (south)	Roosevelt to Nueva	X	X	X	X	X	X	X	X	Roadway was recently improved, do not want to recommend widening to put in sharrow. Presa will be an alternate bike route. Improvements should focus on pedestrian improvements, streetscaping, etc. At time roadway is reconstructed, sidewalks should be widened to 8 feet minimum and consideration given to incorporating wider outside lanes for sharrow.	Principal Rte/Downtown Essential	
23		Laredo	Commerce to Market	X	X	X	X	X	X	X	X	Convert one-way to two-way between Commerce and Dolerosa to improve access to parking, El Mercado and Casa Navarro. Cannot convert section between Commerce and Nueva since it is not public right-of-way but part of a parking lot.	Downtown Activity	
NON-ROADWAY PROJECTS														
24		River Walk Access		X	X	X	X	X	X	X	X	Consider opportunities for improving River Walk connection at street level as part of projects.		
25		Freeway Underpasses/Connections		X	X	X	X	X	X	X	X	Consider opportunities for improving connections under freeways as part of projects.		
REMAINING PROJECTS - STUDIED BUT NOT RECOMMENDED														
26A		Commerce 2-Way Conversion	IH 37 to IH-35	X	X	X	X	X	X	X	X	Determine the feasibility to change the operation from one-way to two-way	Principal Route/Special Street	
26B		Market 2-Way Conversion	IH 37 to IH-35	X	X	X	X	X	X	X	X		Principal Route/Special Street	
27A		Alamo, St Mary's, Presa (2 Intersections)										no improvements possible within ROW	Gateway Intersections on Principal Rte, Downtown Essential & Downtown Lifestyle	
27B		Alamo and Probandt Intersection										City improvement currently under design		

LONG RANGE TRANSPORTATION IMPROVEMENTS

The projects not identified as part of the 2012 Bond Program or the HemisFair Park redevelopment are currently unfunded. These projects represent long range improvements for Downtown. As future funding sources become available, these concepts should be considered for implementation. The long range improvements consist of a mix of corridor improvements, intersection improvements, and wayfinding and branding enhancements. The construction of the long range projects should be prioritized to provide roadway improvements in areas where redevelopment of the downtown area is occurring. These improvements should incorporate streetscaping and placemaking strategies wherever possible to help transform the character of downtown.

DOWNTOWN STREET DESIGN

The Downtown Street Design component, **Section 4**, provides guidance for identifying and prioritizing future street improvements. It does this by describing how great streets are created and using a street typology to guide future design of specific improvements and dimensions based on five unique street types. These are tailored to the downtown area and intended to be implemented over time as funding becomes available and projects are undertaken that provide opportunities to improve the public right of way.

OVERVIEW OF RECOMMENDATIONS

NEW STREETS AND IMPROVED CONNECTIVITY

New Frontage Road/Tower of America Way - Market Street Realignment

The Market Street Realignment project consists of realigning Market Street to run parallel to Commerce Street and to create a new IH-37 Frontage Road that extends from Commerce, south to César Chávez Boulevard. The newly realigned Market Street would form a T-type intersection with the Frontage Road and would be signalized. Construction of this project is to be funded by the 2012 Bond Program. The design is being completed under a current CIMS project and has not been finalized. An added benefit of the Market Street Realignment project is the improved connectivity with the East Side. The realignment will provide a new connection from the southbound exit ramp from IH-37 at Commerce. Also, Montana is being considered for two-way operation as part of the project which would provide an additional connection from Commerce and Market Street to the East Side.

STREETS WITH PEDESTRIAN/BICYCLE IMPROVEMENTS, AND ECONOMIC DEVELOPMENT SUPPORT

(COMPLETE STREETS, STREETScape, LIGHTING, PARKING, AND SIDEWALK IMPROVEMENTS)

Commerce Street— Bowie to Santa Rosa

Commerce Street is a one-way westbound road traversing the downtown area between Interstate 37 and Interstate 35. Commerce Street has four lanes between Bowie Street and Santa Rosa, one of which is a bus-only lane. Commerce Street has parallel parking along the south side of the street between Bowie Street and Alamo Street and carries over 18,000 vehicles per day, and over 1,200 vehicles during the peak. Commerce Street is one of the most prominent and visible corridors in the downtown core. The existing sidewalks on Commerce Street range from 5 feet to 16 feet in width and the lanes range from 9 feet to 11 feet in width. Commerce Street is designated as a Principal Route and a Special Street on the street typology map. The pedestrian experience on Commerce Street today is not a pleasant one. The narrow sidewalks and substantial pedestrian volume do not allow for a separation to offer a buffer to the adjacent traffic. Based on comments received during the study, there is an impression that traffic travels at high speeds on Commerce making pedestrians uncomfortable. In actuality, most of the traffic travels below the posted speed limit of 30 mph, which is probably due to the narrow lanes and presence of trucks, buses and pedestrians. Without the separation buffer, pedestrians feel exposed to traffic and the noise it generates.

Removing the bus-only lane and reallocating this space will improve the quality of other modes of transportation. Commerce Street is an example where limited available right-of-way requires trade-offs when determining which improvements can be made. Improvements considered include streetscaping elements combined with one or more of the following: bike lanes, wide outside lanes with sharrow markings, on-street parking, wider travel lanes and sidewalk widening. Three options were developed to incorporate these features where possible. **Option A** consists of three travel lanes and widened sidewalk on the north side of Commerce Street.

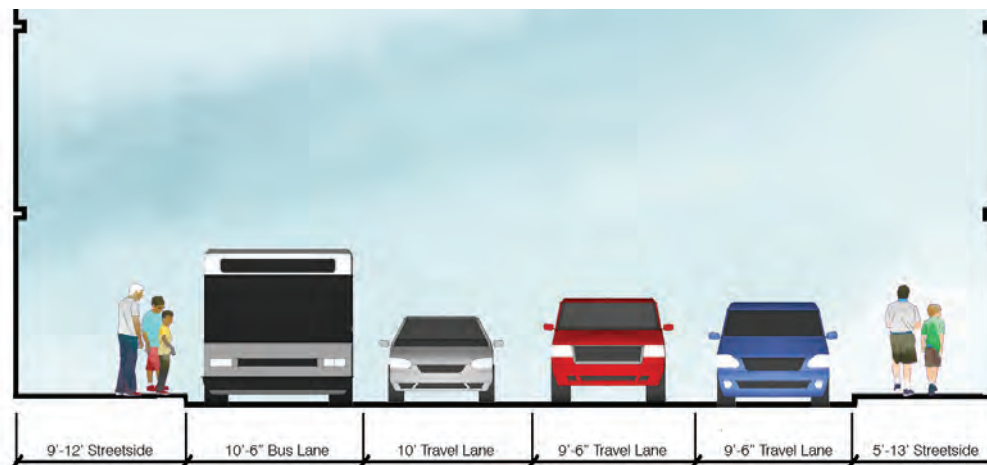


Figure 3-1
Existing Commerce Street Cross-Section (Between Losoya and Navarro)

The proposed sidewalk width will vary from 16 feet to 20 feet. This option enhances the pedestrian environment which also supports transit users. **Option B** consists of a 15-foot right-most travel lane with two 10-foot travel lanes and widening the northern sidewalk to range between 13 feet and 17 feet. This option provides limited improvements for pedestrians and transit users, but allows for a wider outside lane, which can be shared with bicyclists and marked with sharrow. **Option C** consists of a dedicated bike lane with a buffer and no sidewalk widening. This option best addresses the needs of cyclists, but does not significantly improve the quality of the corridor for pedestrians and transit users.

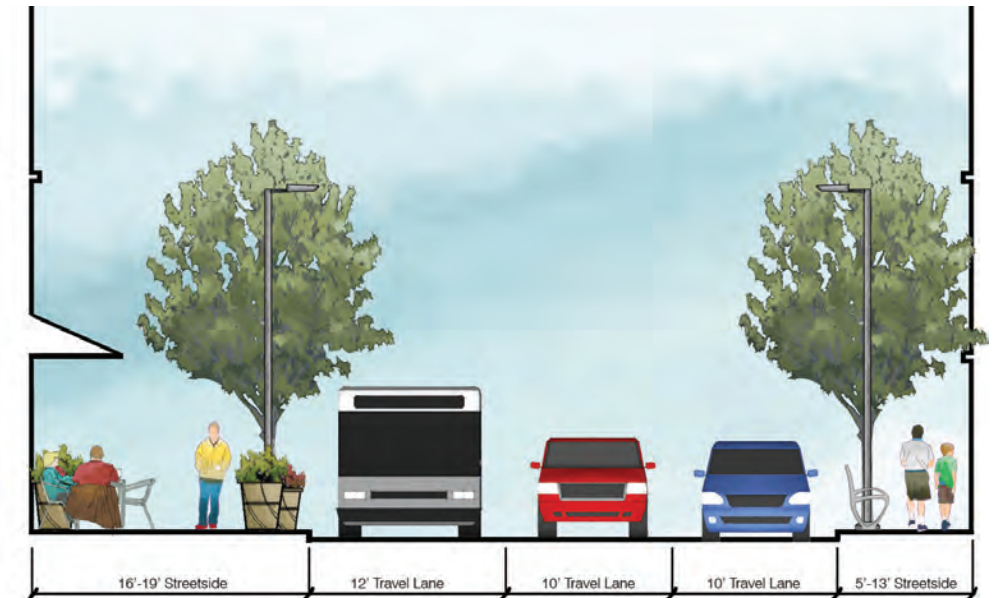


Figure 3-2: Option A (Between Losoya and Navarro)

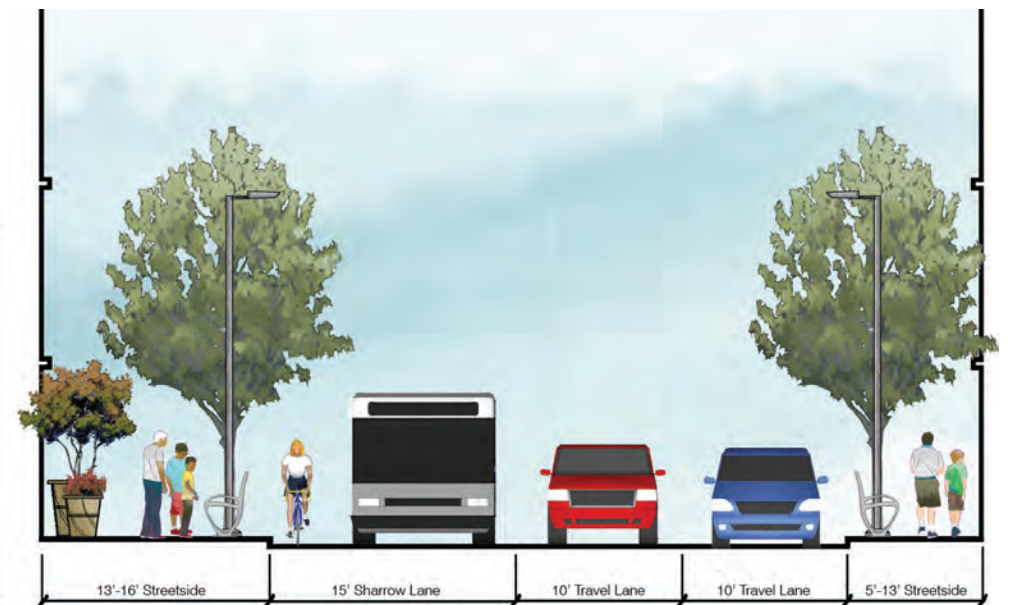


Figure 3-3: Option B (Between Losoya and Navarro)

Commerce Street— Bowie to Santa Rosa, *continued*

Commerce Street has a large volume of pedestrian traffic due to the number of nearby destinations including hotels, tourist attractions such as Governor’s Palace, Plaza De Armas, El Mercado, the Alamo and the River Walk, restaurants and shops, retail centers such as RiverCenter Mall, and access to public transportation. Future plans for the area include creating a retail corridor along Commerce Street, which would be expected to further increase pedestrian traffic. Because of the substantial traffic volumes, the density of driveway spacing and buses using the right-most lane, a shared bike lane was considered unsuitable for Commerce Street. A buffered bike lane or cycle track would provide a safer facility for cyclists, but would not allow for any sidewalk widening. Because of the need to accommodate pedestrians and transit users on Commerce Street and the availability of nearby parallel bike routes such as Nueva and Houston, we recommend **Option A** for Commerce Street.

The recommended concept for Commerce Street meets all five improvement categories. The pedestrian improvements, including areas around bus shelters, will support getting to and around downtown. The additional streetscaping features will transform the public realm making Commerce a better, more inviting street for all users. **Figures 3-5** and **Figure 3-6** show a before-and-after comparison – an existing photograph of a view of Commerce Street, and a rendering from the same vantage point of what Commerce Street could become with the implementation of **Option A**.



Figure 3-5: Photo of Commerce Street

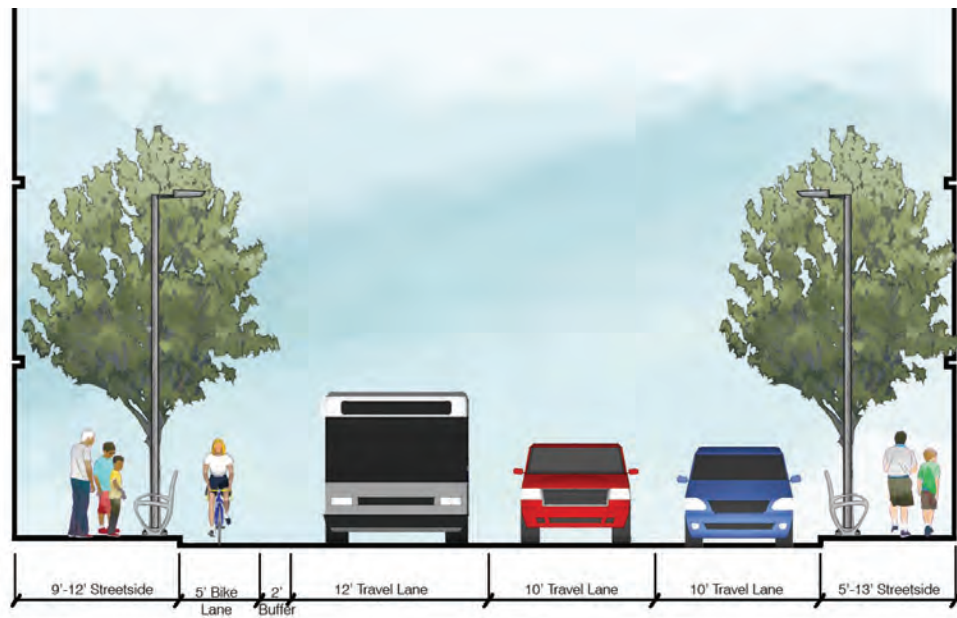


Figure 3-4: Option C (Between Losoya and Navarro)



Figure 3-6: Option A on Commerce Street

Commerce Street— Bowie to Santa Rosa, continued

VIA is proposing to significantly reduce the volume of buses on Commerce Street with the proposed Downtown service plan. Routes 17, 22, 28, 93, 94 and 1000 will serve Commerce Street in the future. The VIA Primo Circulator will have 10-minute headways and the remaining bus routes will have fewer buses than what is on Commerce today. The total number of buses varies by segment along the roadway. For purposes of the analysis an average of three-minute headways was assumed for the model at every signalized intersection. The widening of the lanes and improvements to the signal timing helped achieve acceptable levels of service along the corridor. All intersections within the project limits operate at a Level of Service (LOS) C or better with the proposed improvements and projected 2020 volumes. To maintain an acceptable level of service at the intersection of Commerce Street and Flores, the exclusive pedestrian phase was removed. This change is necessary to maintain acceptable vehicular levels of service with future volumes and with removal of the bus-only lane. While the exclusive pedestrian phase is an enhancement for pedestrians, the wider sidewalks will create a greater overall benefit. Without the removal of the exclusive pedestrian phase, the intersection of Commerce Street and Flores would operate at LOS E under the Build condition.

LOS Results (2020) - Commerce Street				
CROSS STREET	NO BUILD		BUILD	
	AM	PM	AM	PM
IH-37 NB FRONTAGE ROAD	C	B	C	B
IH-37 SB FRONTAGE ROAD	B	B	B	B
BOWIE	C	C	C	C
PED SIGNAL	A	A	A	A
RIVERCENTER	A	A	A	A
ALAMO	A	B	B	B
LOSOYA	A	B	A	C
PRESA	A	A	A	A
NAVARRO	B	B	B	B
ST MARYS	B	B	B	B
SOLEDAD	A	A	A	A
MAIN	A	B	B	B
FLORES	C	D	C	C
CAMARON	A	A	B	B
LAREDO	A	A	A	A
SANTA ROSA	C	C	C	C
SAN SABA	A	A	A	A
PECOS	A	B	A	B
LEONA	A	A	B	A
FRIO	C	D	C	D

In addition to the traditional LOS analysis performed for vehicular traffic at intersections, the following table shows the LOS results for other users of Commerce Street if the concept is implemented. With wider sidewalks, street trees, seating and more space for bus shelters, it's not surprising to see improved results for pedestrians and transit users as shown in the table with LOS A and B.

MMLOS Results (2020 Build) - Commerce WB PM						
SCORES						
SEGMENT	BIKE SCORE	BIKE LOS	PED SCORE	PED LOS	BUS SCORE	BUS LOS
ST. MARY'S – SOLEDAD	3.56	D	2.18	B	9.24	A
SOLEDAD – MAIN	3.36	C	1.92	B	9.24	A
MAIN – FLORES	3.69	D	2.29	B	9.24	A
FLORES – CAMARON	3.57	D	2.11	B	9.24	A
CAMARON – LAREDO	3.56	D	2.1	B	9.24	A
LAREDO – SANTA ROSA	3.46	C	1.99	B	9.24	A

Commerce Street was also reviewed for **placemaking** opportunities. With Market Square on the western side of Santa Rosa Boulevard, the intersection at Commerce and Santa Rosa is a critical link for visitors and a gateway to downtown San Antonio from the west side. Improvements should address pedestrian safety and brand the intersection as a pedestrian – friendly space. Traffic calming treatments should be considered from midblock along all four approaches, with pavement treatments, trees and plantings that encourage a reduction in travel speeds and add beauty, as well as a gateway element to Market Square.

Market Street— IH-37 to Santa Rosa

Dolorosa changes name to Market Street at Main Avenue; for simplicity we will refer to this corridor as Market Street. Market Street is a one-way eastbound road traversing the downtown area between Interstate 37 and Interstate 35. Market Street has four lanes between Alamo Street and Santa Rosa, one of which is a bus-only lane. Market Street has parallel parking along the north side between Santa Rosa and Plaza de Armas and carries over 14,000 vehicles per day, and over 1,300 vehicles during the peak. Like Commerce Street, Market Street is one of the most prominent and visible corridors in the downtown core, serving many visitors and tourists who enter and exit Downtown. The existing sidewalks on Market Street range from 7 feet to 16 feet in width and the lanes range from 10 feet to 12 feet in width. Market Street is designated as a Principal Route and a Special Street on the street typology map. Similar to the concept for Commerce Street, this study proposes to remove the bus-only lane and reallocate this space. Improvements considered

include streetscaping elements in conjunction with a combination of one or more of the following: bike lanes, wide outside lanes with sharrow markings, on street parking, wider travel lanes and sidewalk widening. Three options were developed to incorporate these features where possible. **Option A** consists of three travel lanes and widening the sidewalk on the south side of Market Street. The south side was chosen to provide adequate space for bus shelters, and because the sidewalks are generally narrower. The proposed sidewalk width will vary from 17 feet to 23 feet. This option primarily enhances the environment for pedestrians and transit users. **Option B** consists of a 15-foot right-most travel lane and two 12-foot travel lanes and widening the sidewalk to range between 13 feet and 19 feet in width. This option provides limited improvements for pedestrians and transit users, but allows for a wider outside lane, which can be shared with bicyclists and marked with sharrow.

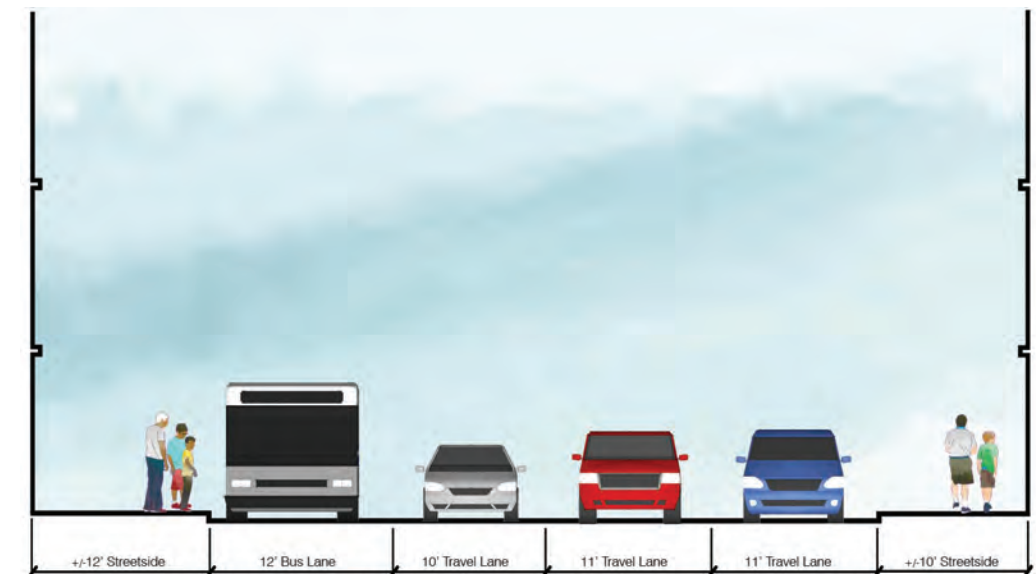


Figure 3-7: Market Street Existing Cross-Section

Option C consists of a dedicated bike lane with a buffer and no sidewalk widening. This option best addresses the needs of cyclists, but does not significantly improve the quality of the corridor for pedestrians and transit users.

Market Street has a large volume of pedestrian traffic due to nearby destinations such as the Henry B. Gonzales Convention Center, hotels, HemisFair Park, River Walk access points, El Mercado, Casa Navarro, the Governor's Palace, Plaza De Armas, the Alamo and access to public transportation. Future development in the area is expected to further increase pedestrian traffic. Because of the large traffic volumes, density of driveway spacing and buses in the right-most lane, a shared bike lane is not suitable on Market Street. A buffered bike lane or cycle track would provide a safer facility for cyclists, but would not allow for any sidewalk widening. Because of the need to accommodate pedestrians and transit users on Market Street and the availability of nearby parallel bike routes such as Nueva and Houston, we recommend **Option A** for Market Street.

Market Street— IH37 to Santa Rosa, continued

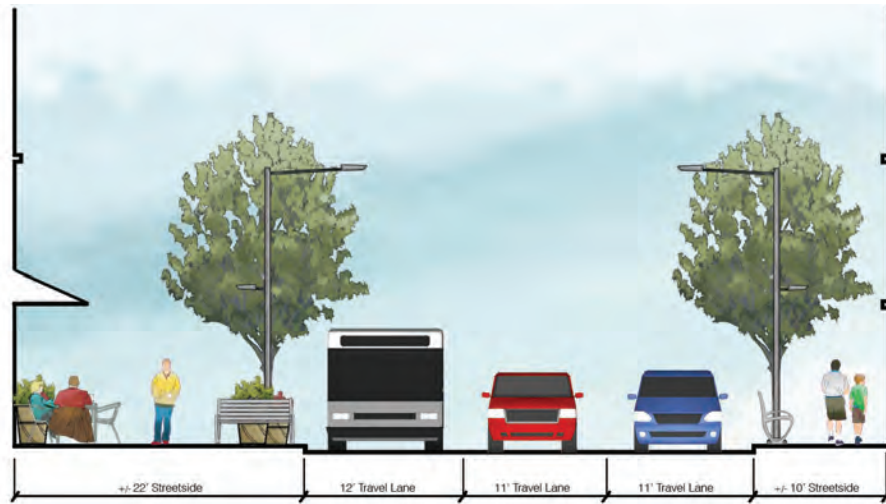


Figure 3-8: Market Street Option A

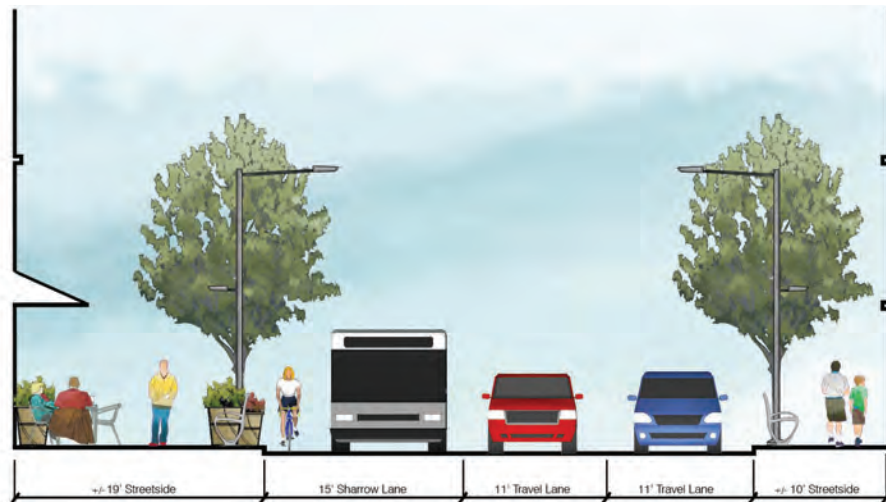


Figure 3-9: Market Street Option B

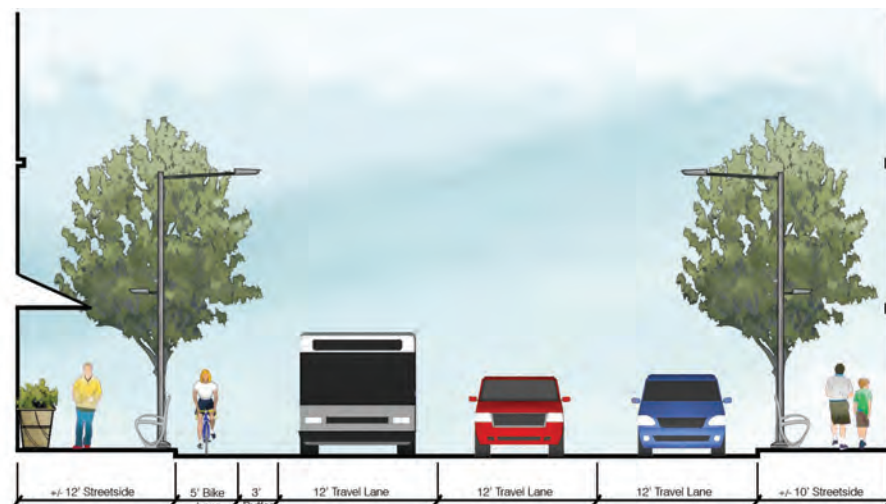


Figure 3-10: Market Street Option C

The recommended concept for Market Street meets all five improvement categories. The pedestrian improvements including areas around bus shelters will support getting to and around downtown. The additional streetscaping features will transform the public realm making Market Street a better, more inviting street for all users.

VIA is proposing to significantly reduce the volume of buses on Market Street with the proposed Downtown Service plan. Routes 64, 70, 17, 22, 48, 67 and 1000 (Primo) will serve Market Street in the future. The VIA Primo Circulator will have 10-minute headways and the remaining bus routes will have fewer buses. The total number of buses varies by segment along the roadway. For purposes of the analysis, an average of 2.5 minute headways was assumed for the model at every signalized intersection. The widening of the lanes and improvements to the signal timing helped achieve acceptable levels of service along the corridor. All intersections operate at a LOS C or better with the proposed improvements and projected 2020 volumes. To maintain an acceptable level of service at the intersection of Market Street and Flores, the exclusive pedestrian phase was removed. This change is necessary to maintain acceptable vehicular levels of service with future volumes and with removal of the bus-only lane. While the exclusive pedestrian phase is an enhancement for pedestrians, the wider sidewalks create a greater overall benefit. Without the removal of the exclusive pedestrian phase, the intersection of Market Street and Flores would operate at LOS F for the Build condition.

In addition to the traditional LOS analysis performed for vehicular traffic at intersections, the following table shows the LOS results for other users, or multimodal LOS, of Market Street if the concept is implemented. With wider sidewalks, street trees, seating and more space for bus shelters, it's not surprising to see improvements for pedestrians and transit users as shown in the table with LOS A and B.

MMLOS RESULTS (2020 BUILD) - MARKET STREET EB PM						
SCORES						
SEGMENT	BIKE SCORE	BIKE LOS	PED SCORE	PED LOS	BUS SCORE	BUS LOS
SANTA ROSA – PLAZA DE ARMAS	3.57	D	2.11	B	18.48	A
PLAZA DE ARMAS – FLORES	3.58	D	2.13	B	18.48	A
FLORES – MAIN AVE	3.57	D	2.11	B	18.48	A
MAIN AVE – MAIN PLAZA	3.64	D	2.21	B	18.48	A
MAIN PLAZA – ST. MARY'S	3.59	D	2.24	B	18.48	A

LOS RESULTS (2020) - MARKET STREET				
CROSS STREET	NO BUILD		BUILD	
	AM	PM	AM	PM
FRIO	E	D	C	C
PECOS	A	A	A	A
SAN SABA	F	B	B	B
SANTA ROSA	C	C	C	C
PLAZA DE ARMAS	A	A	B	A
FLORES	F	B	C	C
MAIN AVE	A	A	A	A
MAIN PLAZA	A	A	A	B
ST MARYS	A	B	A	B
NAVARRO	A	B	A	C
PRESA	A	A	A	A
ALAMO	C	C	C	C
CONVENTION CENTER	B	A	A	A
PED SIGNAL	A	A	A	A
BOWIE	B	C	B	C
IH-37 SB FRONTAGE ROAD	C	B	C	B



Market Street

Alamo Street — Market to Presa

Alamo Street is a five to six lane divided north-south roadway. Alamo Street provides direct access to HemisFair Park, The Alamo, and intersects all of the principal east-west downtown streets. Alamo Street carries over 8,500 vehicles per day and over 700 vehicles during the peak hour and is listed as a Downtown Activity street and a Special Street on the street typology map.

The HemisFair Park Complete Streets Project includes Alamo Street, from Market Street to St. Mary's Street. In the section between Market Street and César Chávez, a multi-way boulevard with three main lanes and two local access roads with sharrows, parking and wide sidewalks is proposed. The proposed improvements in the section between César Chávez Boulevard and Presa Street consist of retaining the travel lanes, keeping the existing bike lanes, and on-street parking. The change proposed consists of offering parklet options for on-street parking spaces or flex zones along with streetscaping, pedestrian lighting, sidewalk improvements and other components. Parklets or flex zones allow flexibility for alternative uses of parking spaces, such as outdoor seating, display areas or vendor space. The addition of a westbound right turn lane was proposed at the intersection of Alamo Street and César Chávez Boulevard to provide better traffic operation. The existing and proposed cross-sections for Alamo, Market Street, César Chávez and Nueva can be viewed as part of the HemisFair Park Complete Streets Project.

The proposed improvements do not negatively affect levels of service. The intersection of Alamo Street and César Chávez Boulevard will operate at level of service D in year 2020, if a right turn lane is constructed and the signal is retimed. This intersection operates at LOS F in the No Build. All other intersections operate at LOS C or better.

LOS Results (2020) - Alamo Street				
CROSS STREET	NO BUILD		BUILD	
	AM	PM	AM	PM
PRESA	C	C	C	C
CÉSAR CHÁVEZ	C	F	C	D
NUEVA	C	A	C	C
MARKET	C	C	C	C

MMLOS Results (2020 Build) - Alamo Street SB PM						
SEGMENT	SCORES					
	BIKE SCORE	BIKE LOS	PED SCORE	PED LOS	BUS SCORE	BUS LOS
MARKET- NUEVA/GOLIAD	-4.81	A	1.93	A	2.42	B
NUEVA/GOLIAD - CÉSAR CHÁVEZ	-4.85	A	1.69	A	2.31	B
CÉSAR CHÁVEZ - PRESA	2.4	B	1.84	A	2.31	B
PRESA - ST. MARY'S	1.7	A	1.48	A	1.49	A

César Chávez — IH 37 to Main

César Chávez Boulevard is a four lane divided east-west roadway. César Chávez Boulevard provides direct access to HemisFair Park, and intersects all principal north-south downtown streets. César Chávez Boulevard carries over 18,700 vehicles per day and over 1,800 vehicles during the peak hour. César Chávez Boulevard is listed as a Principal Route on the street typology map.

The HemisFair Park Complete Streets Project includes a segment of César Chávez Boulevard from IH-37 to the San Antonio River. Between IH-37 and Alamo, the HemisFair Complete Streets project proposes to add on-street parking, stormwater planters, and bike lanes with buffers. Between Alamo Street and St. Mary's, the HemisFair Park Complete Streets project proposes to transition from bike lanes to shared-use paths. Between St. Mary's Street and the River, the Downtown Transportation Study differs from the HemisFair Park Complete Streets Project. The DTS recommends transitioning from the shared use path to sharrows by resizing the median and adding wide outside lanes with sharrow markings (15 feet minimum) in the short term and a full bike lane once the road is reconstructed. Since the DTS shows sharrows continuing to connect with Main Avenue, detailed right-of-way information will be required to determine if bike lanes can be constructed on this segment of César Chávez. The HemisFair Park Complete Streets Project proposes a shared-use path off of the roadway, from Alamo to the River based on the connection with the River Walk, south of César Chávez Boulevard. The intent of the DTS is to provide a connection west of the River to the proposed north/south bike facilities on Main Avenue and Soledad. However, the narrow pavement on the bridge over the River will not accommodate any bike facilities. Cyclists must mix with traffic to cross the bridge, dismount and walk their bikes along the sidewalk, or use the River Walk connection. We recommend reducing the posted speed limit on César Chávez Boulevard to 30 mph.

The proposed improvements do not negatively impact levels of service. But the intersection at Santa Rosa, will operate under the desirable levels of service in 2020 both with and without the proposed improvements.



César Chávez

The results of the multimodal LOS for the proposed improvements on César Chávez Boulevard from Alamo to Flores are shown below. The proposed bike facilities are assumed to be shared-use paths from Alamo to St. Mary's with wider outside lanes with sharrow markings from St. Mary's to Main Avenue. The results indicate the sections with proposed sharrows show a minor improvement for cyclists in the Build Condition. The sections with proposed buffered bike lanes or shared-use paths show a greater improvement in LOS compared with the No Build.

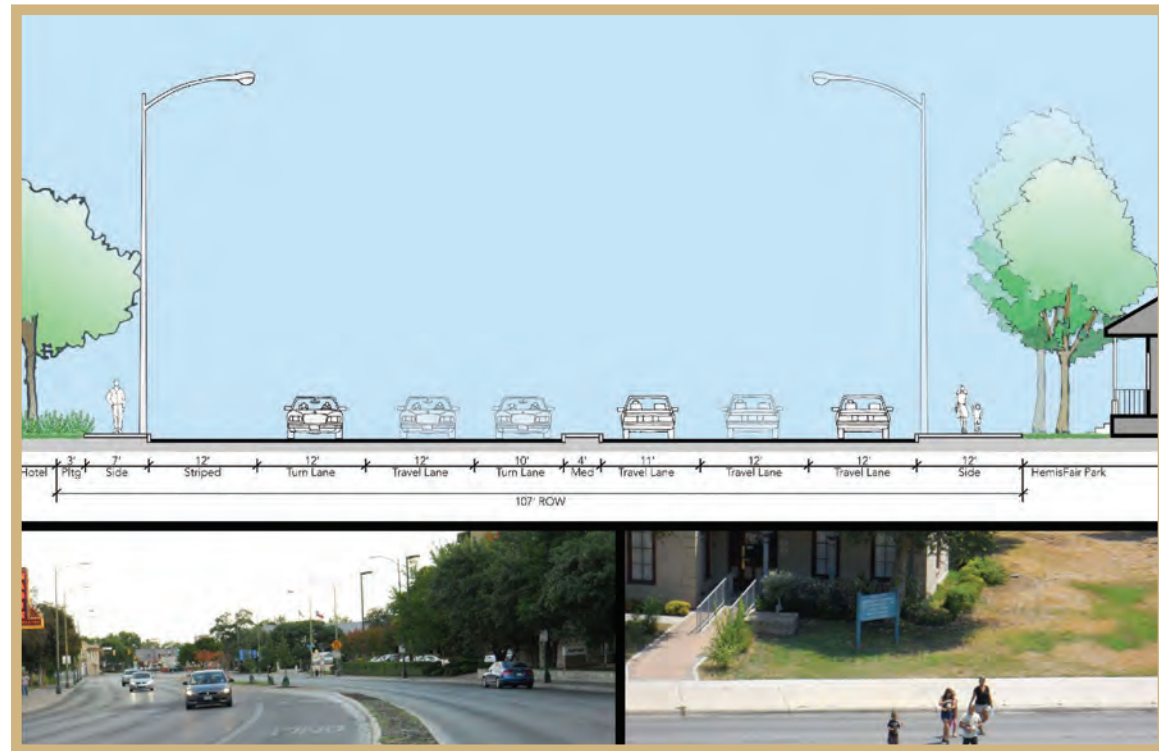
LOS Results (2020) - César Chávez Blvd				
CROSS STREET	NO BUILD		BUILD	
	AM	PM	AM	PM
SANTA ROSA	F	F	F	F
FLORES	D	D	C	C
MAIN AVENUE	E	D	C	D
ST. MARY'S	E	E	D	D
ALAMO	C	D	C	D
INDIANOLA	B	B	B	B
IH-37	D	D	D	D

MMLOS Results (2020 No Build) - César Chávez Blvd EB PM						
SEGMENT	SCORES					
	BIKE SCORE	BIKE LOS	PED SCORE	PED LOS	BUS SCORE	BUS LOS
FLORES – MAIN AVE	4.35	D	3.43	C	4.63	B
MAIN AVE – ST. MARY'S	4.44	D	3.68	D	4.41	B
ST. MARY'S – ALAMO	4.45	D	3.74	D	4.41	B

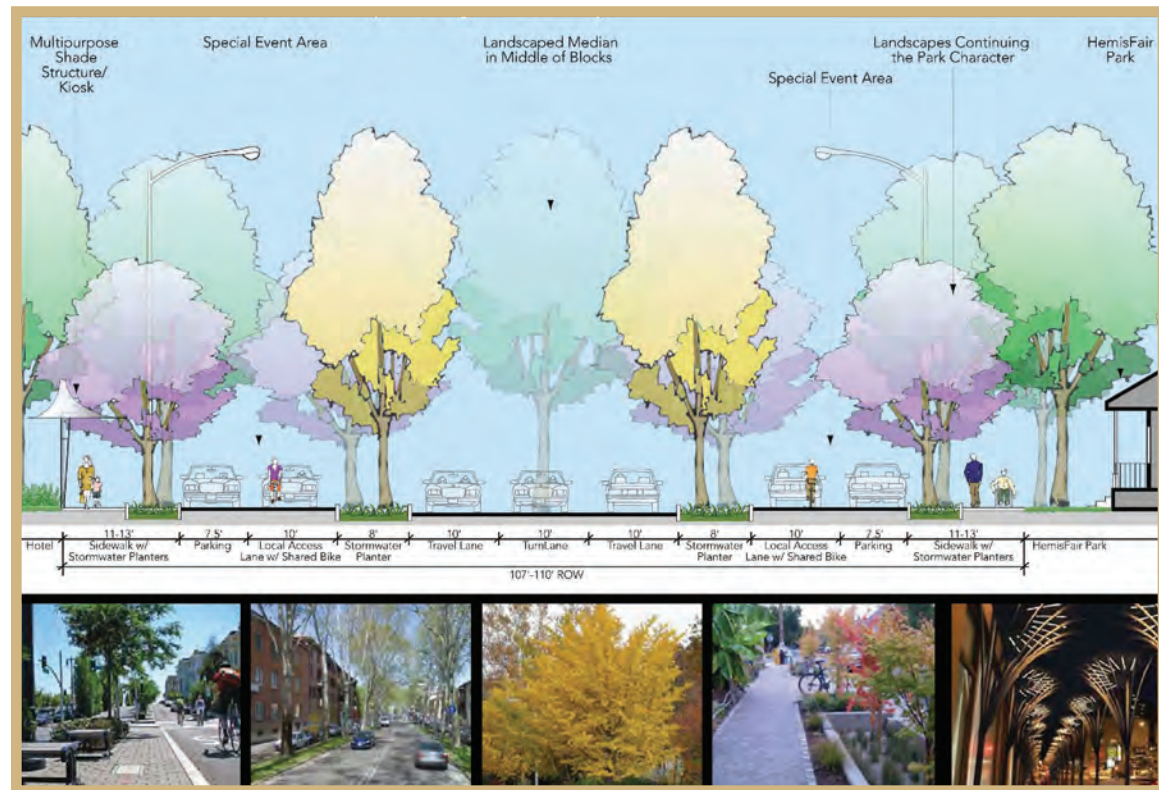
MMLOS Results (2020 Build) - César Chávez Blvd EB PM						
SEGMENT	SCORES					
	BIKE SCORE	BIKE LOS	PED SCORE	PED LOS	BUS SCORE	BUS LOS
FLORES – MAIN AVE	3.88	D	3.26	C	4.63	B
MAIN AVE – ST. MARY'S	3.73	D	3.28	C	4.63	B
ST. MARY'S – ALAMO	2.28	B	3.07	C	4.63	B

HEMISFAIR COMPLETE STREETS PROJECT

ALAMO STREET CONCEPT



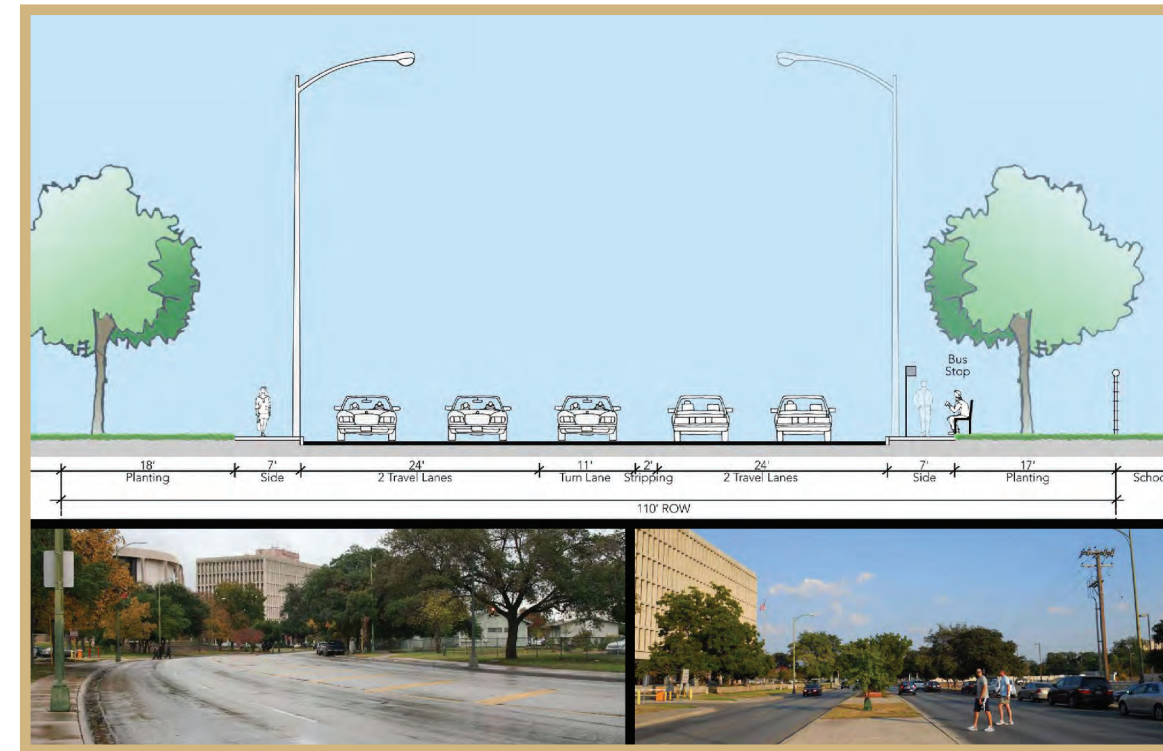
Existing Section



Proposed Section: two travel lanes and center turn lane.

Source: MIG, Inc.

CÉSAR CHÁVEZ BOULEVARD CONCEPT



Existing Section



Proposed Section and Examples: four-lane divided roadway with bike lanes.

Source: MIG, Inc.

The cross sections on the left show the existing sections and proposed concepts for Alamo Street and César Chávez Boulevard developed for the HemisFair Complete Streets Project.

The cross sections show Alamo Street from César Chávez to Commerce. The proposed concept has two travel lanes and a center turn lane. It also includes local access roads with on-street parking.

The César Chávez cross sections show the segment between Alamo and IH-37. The proposed concept is a four-lane divided roadway with bike lanes buffered by on-street parking and storm-water planters.

Santa Rosa— Martin to Nueva

Santa Rosa is a six-lane divided north-south roadway on the west side of Downtown, **Figure 3-11**. Santa Rosa provides direct access to El Mercado, Produce Row, the Vistana, Christus Santa Rosa Hospital and intersects all of the principal east-west Downtown streets. Santa Rosa carries over 12,400 vehicles per day and over 1,100 vehicles during the peak hour. Santa Rosa is listed as a Principal Route on the street typology map.

The proposed improvements for Santa Rosa consist primarily of adding buffered bike lanes transitioning to wide outside lanes with sharrow markings where the right-of-way is insufficient. Although, Santa Rosa is not listed on the current bike plan, bicycle facilities are needed because of the absence of north-south bike routes on the west side of downtown, and since bike lanes most likely cannot be accommodated on Flores due to its limited right-of-way and high traffic volumes. Santa Rosa connects to signed bike routes on Houston and Travis and to proposed bike lanes on Nueva. Additional streetscaping improvements such as pedestrian scale lighting and plantings are also recommended.

Installing bike lanes requires reducing Santa Rosa from six lanes to four. However, at Commerce and Market, Santa Rosa has two existing travel lanes and two left-turn lanes. Traffic analysis shows lanes cannot be reduced in this section without negatively affecting vehicular levels of service to an unacceptable level. Therefore, it is recommended that Santa Rosa be re-striped between Commerce and Market to provide a wide outside lane while preserving the existing lane configuration, **Figure 3-13**. Between Nueva and Market and between Commerce and Martin, one travel lane will be removed, and a buffered bike lane will be installed, **Figure 3-12**. Where the right-of-way exists, sidewalk widening or on-street parking will also be provided. If on-street parking is desired in the section between Market/Dolorosa and Houston, the bike facility is limited to a sharrow with a wide outside lane and the parking is limited to 4 to 5 spaces due to the required transition length.

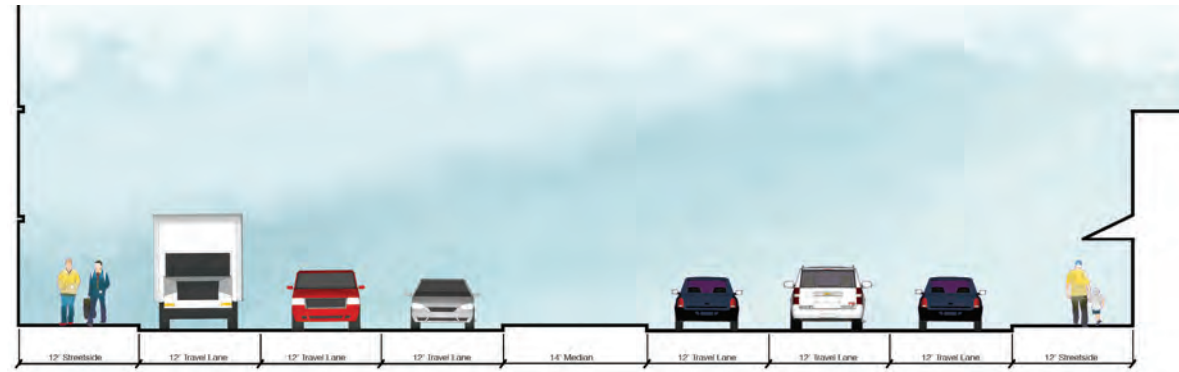


Figure 3-11
Santa Rosa Existing Cross Section – North of Commerce and South of Market

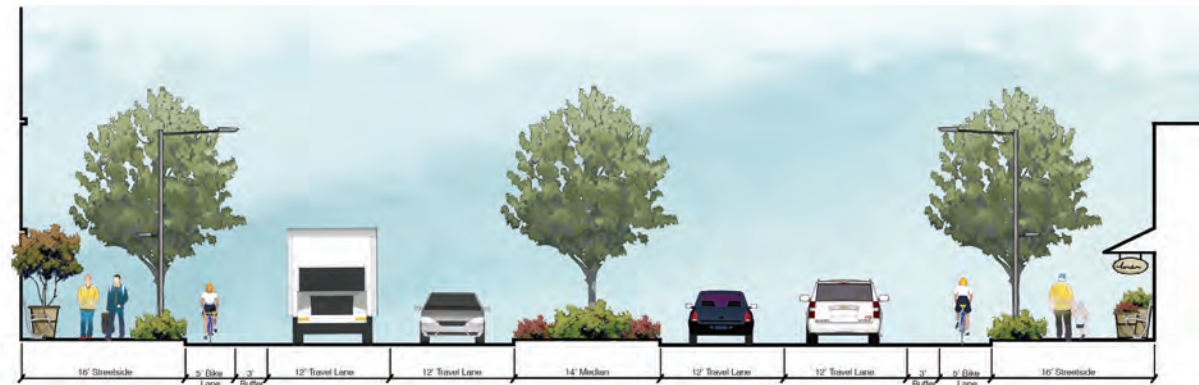


Figure 3-12
Santa Rosa Proposed Cross Section – Nueva to Market; Commerce to Martin

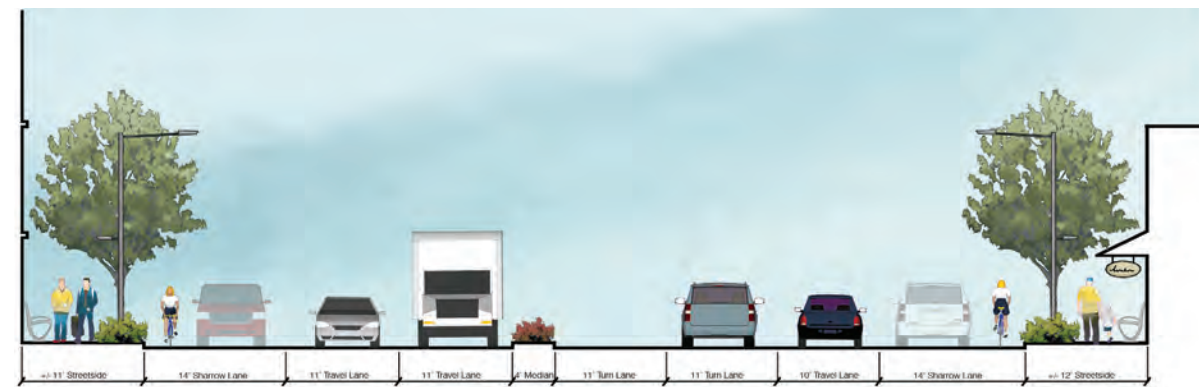
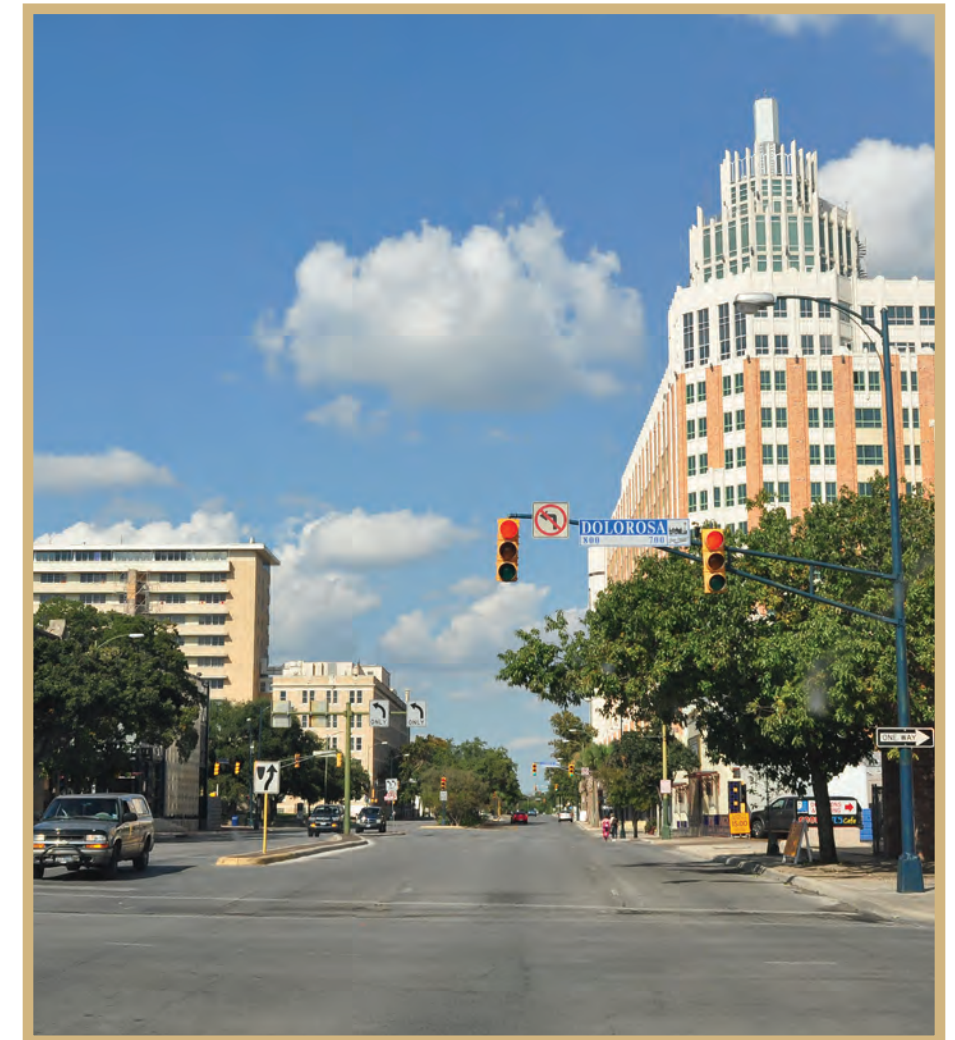


Figure 3-13
Santa Rosa Proposed Cross Section – Commerce to Market

The proposed improvements do not negatively impact the levels of service. The intersections with Nueva and Market Street operate at LOS D in year 2020 both with and without the proposed improvements. All other intersections operate at LOS C or better.

LOS Results (2020) - Santa Rosa				
CROSS STREET	NO BUILD		BUILD	
	AM	PM	AM	PM
NUEVA	D	D	D	D
DOLOROSA / MARKET	C	C	C	C
COMMERCE	C	C	C	C
HOUSTON	C	C	C	C
TRAVIS	B	D	B	B
MARTIN	D	C	D	C



Santa Rosa



Figure 3-14: Existing Santa Rosa

Figure 3-14 and Figure 3-15 show Santa Rosa Street looking south towards Houston Street and a rendering of what Santa Rosa Street could look like with the improvements viewed from the same vantage point.



Figure 3-15: Santa Rosa Proposed Concept

The results of the multimodal LOS analysis show improved LOS for bicyclists along the sections where buffered bike lanes are to be added and slight improvement between Commerce and Market where sharrows are proposed. The bike LOS is D along the section between César Chávez and Nueva where no bike facilities are proposed. The pedestrian LOS improves along segments where sidewalks are widened and where buffered bike lanes provide increased separation distance between sidewalks and the traffic lane.

MMLOS Results (2020 No Build) - Santa Rosa Street NB PM						
SEGMENT	SCORES					
	BIKE SCORE	BIKE LOS	PED SCORE	PED LOS	BUS SCORE	BUS LOS
CÉSAR CHAVEZ – NUEVA	4.06	D	3.13	C	2.21	D
NUEVA – MARKET	4.00	D	3.00	C	2.21	D
MARKET – COMMERCE	3.75	D	2.95	C	2.21	D
COMMERCE – HOUSTON	3.92	D	2.86	C	2.21	D
HOUSTON - TRAVIS	3.77	D	2.64	C	2.21	D
TRAVIS - MARTIN	3.82	D	2.70	C	2.21	D

MMLOS Results (2020 Build) Santa Rosa Street NB PM						
SEGMENT	SCORES					
	BIKE SCORE	BIKE LOS	PED SCORE	PED LOS	BUS SCORE	BUS LOS
CÉSAR CHAVEZ – NUEVA	3.65	D	2.78	C	2.10	D
NUEVA – MARKET	1.89	B	2.19	B	2.20	D
MARKET – COMMERCE	3.33	C	2.64	C	2.10	D
COMMERCE – HOUSTON	1.99	B	2.14	B	2.31	D
HOUSTON – TRAVIS	1.84	B	2.14	B	2.31	D
TRAVIS – MARTIN	1.39	A	1.99	B	2.20	D

Flores — Market to Old Guilbeau

Flores is currently a three-lane roadway between César Chávez Boulevard and Nueva with two lanes southbound and one lane northbound with on-street parking on the east side of the street. Flores is a four-lane undivided north-south roadway between Nueva and Dolorosa, with parking allowed on the west side of the street. Flores intersects all of the principal east-west downtown streets and carries over 10,200 vehicles per day and over 1,000 vehicles during the peak hour. Flores is listed as a Principal Route on the street typology map.

The proposed improvements for Flores consist of converting the roadway from two southbound lanes and one northbound lane with parking to one travel lane in each direction and a center two-way left turn lane or median between Old Guilbeau and Nueva. On-street parking and curb bulb-outs would be provided on the east side of Flores. A mid-block crossing with landscaped median is proposed just north of Old Guilbeau. Between Nueva and Dolorosa, one lane northbound and two lanes southbound are proposed along with on-street parking and curb bulbouts along both sides of the street.

Flores is listed on the current City Bike Plan. The following evaluation was performed regarding bike facilities on Flores from south of César Chávez Boulevard to north of Commerce.

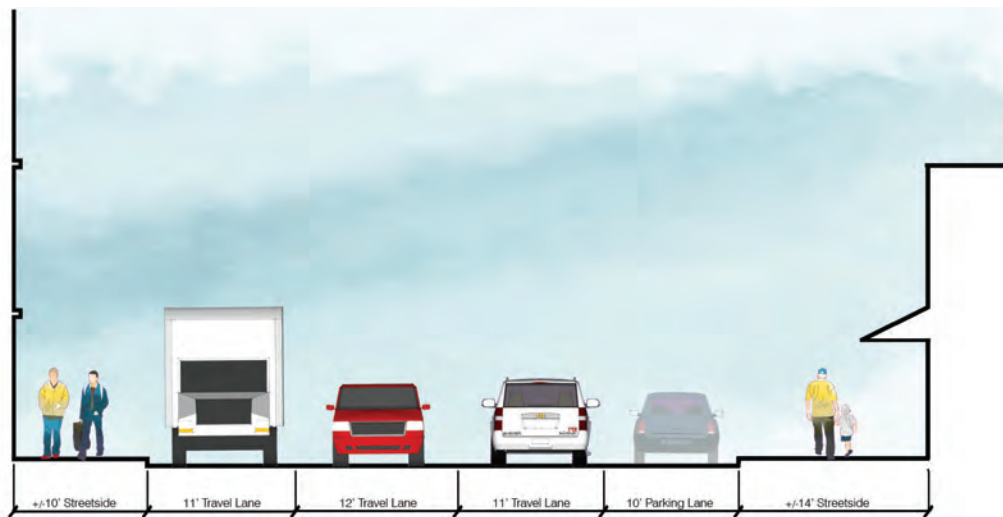


Figure 3-16: Flores Existing Cross Section – Old Guilbeau to Nueva



Flores Street

South of César Chávez:

- A wide outside lane could be added if the road was fully reconstructed, but sidewalk widths would be reduced to approximately 7 feet and utility poles would be in the sidewalk making them a 4 foot walkway. Removing a travel lane in this section would result in unacceptable levels of service.

César Chávez to Nueva:

- On-street parking could remain, and buffered bike lanes could be added within the existing pavement area, if one travel lane was provided in each direction and there is no center turn lane. The bike lanes would have to be dropped at the intersection with Nueva to provide the necessary turn lanes to maintain adequate vehicular level of service. The elimination of the proposed center turn lane may create operational issues with traffic being stopped midblock while a vehicle turns left. Or if the center turn lane is maintained, on-street parking would need to be removed to provide bike lanes.

Nueva to Market:

- If bike lanes are added, parking needs to be removed. Bike lanes would be dropped at the intersections to provide the necessary turn lanes.

From Market to Commerce:

- Wide outside lanes could be provided south of Commerce by removing the curb bulb-out at the intersection. However, the wide lanes could not be continued to Market without acquiring right-of-way from City Hall because of the necessary southbound left-turn lane. This would only provide a wide lane for bikes for about half of a short, 300' block.

North of Commerce:

- No bike facilities are possible without dropping a lane. Two travel lanes in each direction are needed to provide acceptable LOS.

In summary, based on the evaluation above, bike facilities could be incorporated along Flores from César Chávez to Market with the elimination of on-street parking or the center turn lane and mid-block crossing/median. No bike lanes would be accommodated through intersections due to turn lanes. Based on these results, a determination was made to eliminate bike facilities on Flores Street and maintain the on-street parking, center turn lane and mid-block crossing with median instead. There are existing or proposed bike lanes on Main, Soledad, and Santa Rosa, so Flores is not necessary for connectivity. The addition of on-street parking on Flores will support economic development along the roadway. The corridor from Main Avenue to Old Guilbeau is lined with two and three-story buildings with storefronts, but many are currently vacant. Additional streetscaping improvements such as pedestrian scale lighting and plantings are also recommended.

All intersections operate at LOS C or better with the proposed improvements for the projected 2020 volumes. The exclusive pedestrian phases at Flores and Commerce Street, Flores and Dolorosa, and Flores and Nueva, would need to be removed in order to maintain acceptable vehicle LOS.

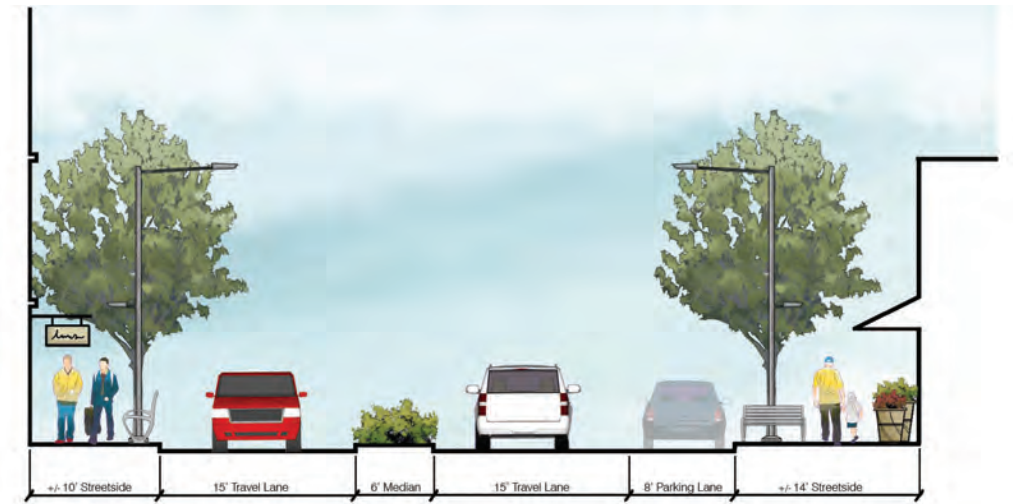


Figure 3-17: Flores Street Proposed Cross-Section, Old Guilbeau to Stumberg

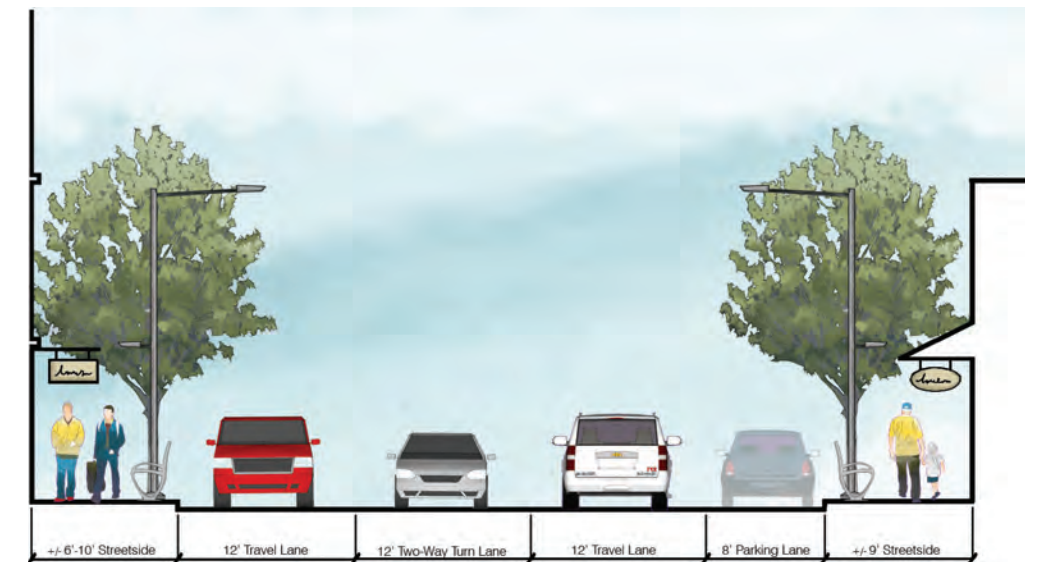


Figure 3-18: Flores Street Proposed Cross-Section, Nueva to Dolorosa

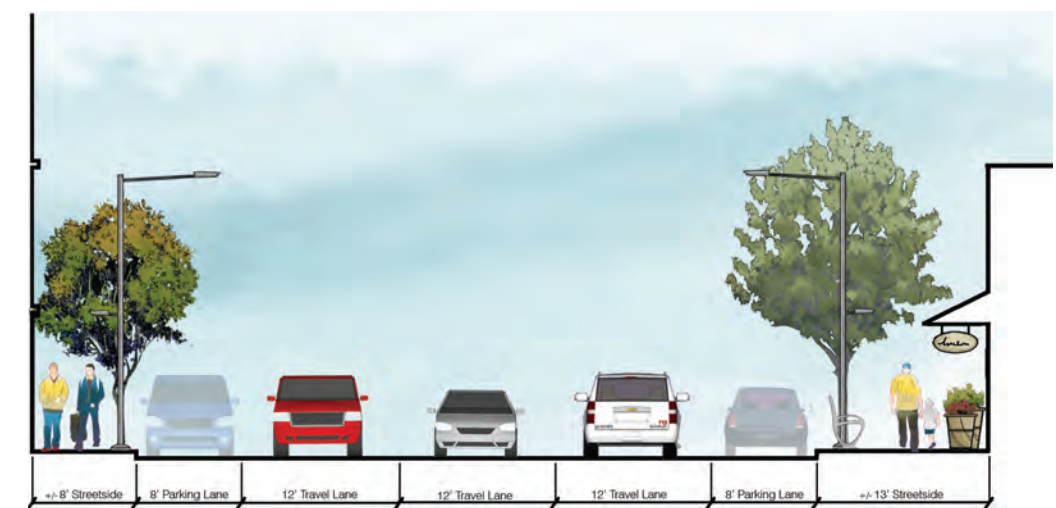


Figure 3-19: Flores Street Proposed Cross-Section, Nueva to Dolorosa

Flores— Market to Old Guilbeau, continued

Figure 3.1.4.2-6-5 and Figure 3.1.4.2-6-6 show a photograph of a view of Flores looking north towards Nueva and a rendering of how Flores Street may look after implementation of the proposed concept.



Figure 3-20: Existing Flores Street



Figure 3-21: Flores Street Proposed Concept

The intersection capacity analysis results for year 2020 show all intersections will operate at LOS C or better in the Build condition with the proposed improvements in place. The future Build Condition assumes the exclusive pedestrian phases are removed at the intersections with Commerce, Dolorosa and Nueva.

LOS Results (2020) - Flores Street				
CROSS STREET	NO BUILD		BUILD	
	AM	PM	AM	PM
CÉSAR CHÁVEZ	D	D	C	C
NUEVA	F	F	C	C
DOLOROSA	F	B	C	C
COMMERCE	C	D	C	C
HOUSTON	C	C	C	C
TRAVIS	C	C	C	C
PECAN	C	C	C	C
MARTIN	C	B	C	B

The pedestrian LOS is improved with the addition of streetscaping elements, curb bulbouts and the midblock crossing as well as the additional on-street parking which acts as a buffer. Bike LOS does not improve since no bike facilities are proposed.

MMLOS Results (2020 Build) - Flores Street NB AM						
SEGMENT	SCORES					
	BIKE SCORE	BIKE LOS	PED SCORE	PED LOS	BUS SCORE	BUS LOS
OLD GUILBEAU – STUMBERG	3.80	D	3.13	C	4.63	B
STUMBERG – NUEVA	4.06	D	3.17	C	4.63	B
NUEVA – DOLOROSA	3.79	D	2.25	B	4.85	B

Main Avenue – Commerce to Martin

Main Avenue is a one-way, five lane southbound road between Martin and Commerce. It has parallel parking along both sides of the street and carries over 7,000 vehicles per day, and over 800 vehicles during the peak hour. The construction of Main Plaza closed Main Avenue between Commerce and Market. Because of this closure, Main Avenue is no longer a primary southbound through route, and traffic volumes have decreased, reducing the need for all five travel lanes. Main Avenue is designated as a Downtown Activity street on the street typology map. Main Avenue is combined with Soledad as a 2012 Bond Project.

The proposed concept consists of reducing Main Avenue to two lanes and installing a bike lane, widening the sidewalks, adding curb bulbouts and providing both reverse-angle and parallel parking. These improvements will transform the character of the corridor and encourage activity and commerce in the area by rendering the street-side more inviting to pedestrians and providing parking for nearby retail and other services. The closing of Main Avenue due to Main Plaza has transformed the road from a major through route to a lower volume local access road, and these proposed improvements help Main Avenue become better suited for its new function.

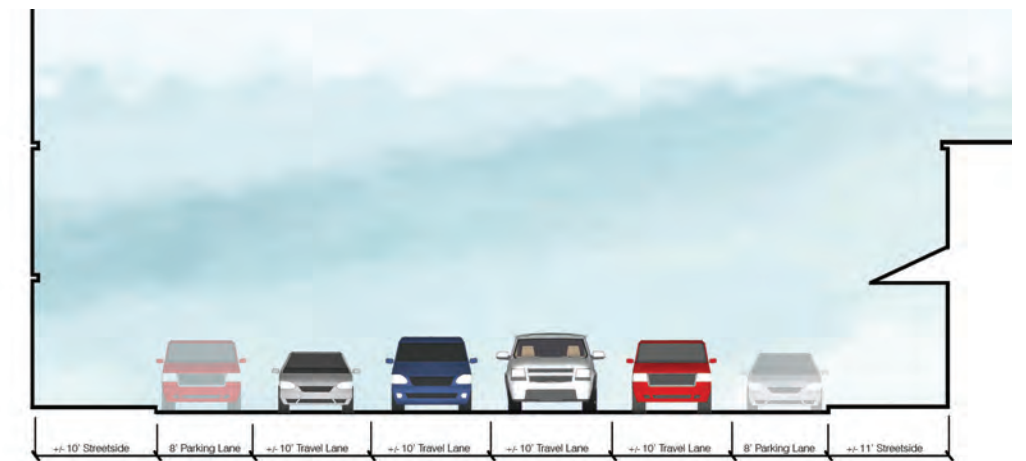


Figure 3-22
Main Avenue Existing Cross-Section, Commerce to Martin

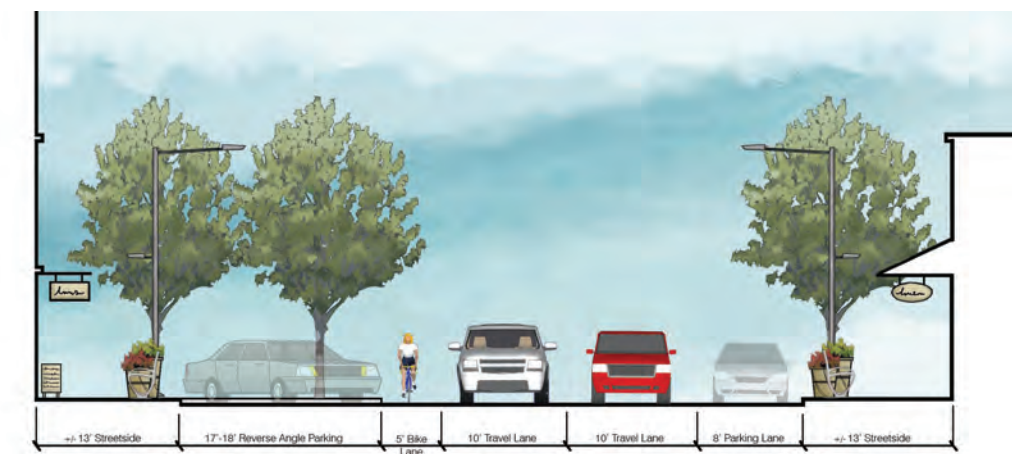


Figure 3-23
Main Avenue Proposed Cross-Section, Commerce to Martin

Main Avenue — Commerce to Martin, continued

All intersections operate at LOS C or better in 2020 for the Build condition with the proposed improvements. Lighting, plantings, street trees, curb extensions, furnishings, and shade structures are potential streetscaping elements which should be considered in the design phase of this concept. **Figure 3-24** and **Figure 3-25** show a photograph of an existing view of Main Avenue looking south at Pecan Street and a rendering of how Main Avenue may look with the proposed improvements from the same vantage point.

The multimodal LOS analysis results show the pedestrian and bike LOS B. This indicates the benefits of a dedicated bike lane, wider sidewalks and streetscaping elements, curb bulbouts and additional on-street parking which acts as a buffer.

LOS Results (2020) - Main Avenue				
CROSS STREET	NO BUILD		BUILD	
	AM	PM	AM	PM
COMMERCE	B	B	B	B
DOLOROSA / MARKET	C	C	B	C
TRAVIS	B	A	B	A
PECAN	B	A	B	B
MARTIN	B	B	B	B

MMLOS Results (2020 Build) - Main Avenue SB AM						
SEGMENT	SCORES					
	BIKE SCORE	BIKE LOS	PED SCORE	PED LOS	BUS SCORE	BUS LOS
MARTIN – PECAN	2.02	B	2.03	B	26.68	A
PECAN – TRAVIS	1.90	B	1.85	B	16.98	A
TRAVIS – HOUSTON	1.76	B	1.68	B	NA	NA
HOUSTON – COMMERCE	1.69	B	1.67	B	7.28	A



Figure 3-24: Main Avenue, view south from Pecan Street



Figure 3-25: Main Avenue Proposed Concept

Soledad — Commerce to Martin

Soledad is a one-way, three-lane northbound roadway between Martin and Commerce. Soledad has parallel parking along one or both sides, and carries over 5,000 vehicles per day and over 600 vehicles during the peak hour. Soledad forms a one-way couplet with Main Avenue. Like Main Avenue, Soledad was closed between Commerce and Market, with the construction of Main Plaza, changing the character of the street from a primary route through Downtown to a road providing local access. Soledad is designated as a Downtown Activity street on the street typology map.

This study proposes to reduce Soledad to a one-lane roadway with a bike lane, wider sidewalks, curb extensions, and reverse-angle and parallel parking. As with Main Avenue, this concept provides streetscaping elements along with street trees to promote pedestrian activity and provide parking to support local businesses. The remaining travel lane is proposed to be 15 feet wide to allow vehicles to pass.

All intersections operate at LOS C or better in 2020 for the Build condition with the proposed improvements. Lighting, plantings, street trees, curb extensions, furnishings and shade structures are potential streetscaping elements which should be considered in the design phase of this concept.

The multimodal LOS analysis results show the pedestrian and bike LOS B. This indicates the benefits of a dedicated bike lane, wider sidewalks and streetscaping elements, curb bulbouts and additional on-street parking which acts as a buffer.

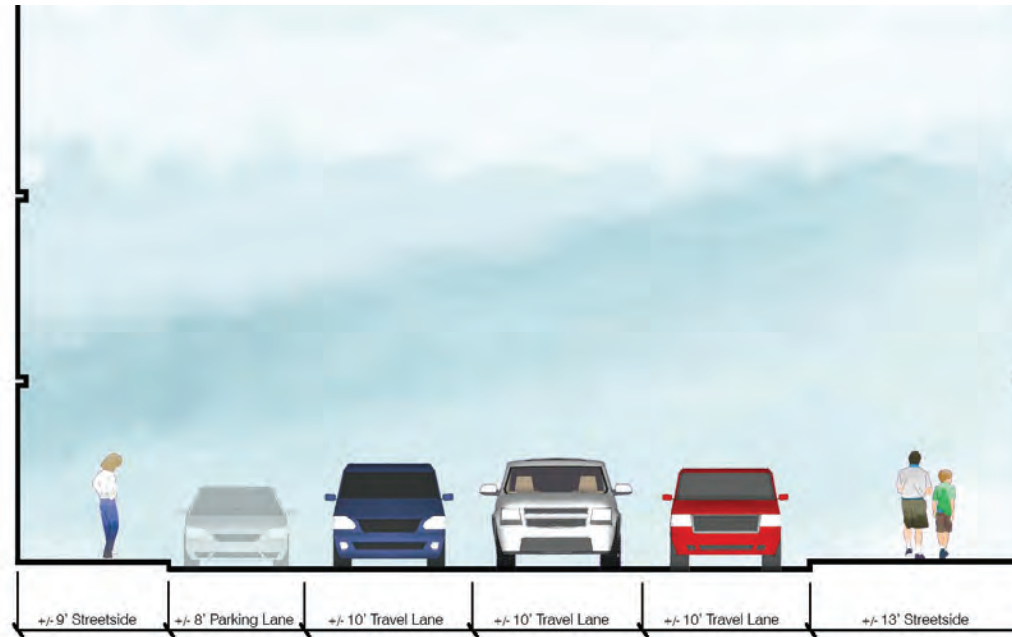


Figure 3-26: Soledad Existing Cross-Section, Commerce to Martin

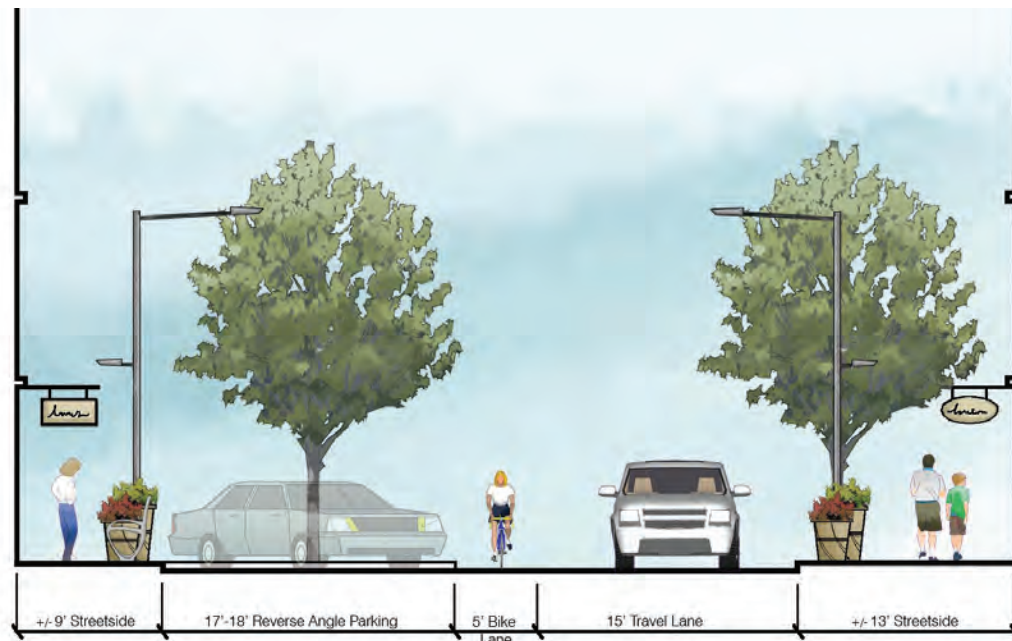


Figure 3-27: Soledad Proposed Cross-Section, Commerce to Martin



View of Main Avenue & Soledad between Commerce & Travis Streets

LOS RESULTS (2020) - SOLEDAD AVENUE				
CROSS STREET	NO BUILD		BUILD	
	AM	PM	AM	PM
COMMERCE	A	A	A	A
HOUSTON	B	B	B	B
TRAVIS	B	B	B	B
PECAN	B	A	B	A
MARTIN	B	B	B	B

MMLOS RESULTS (2020 BUILD) - SOLEDAD AVENUE SB AM						
SEGMENT	SCORES					
	BIKE SCORE	BIKE LOS	PED SCORE	PED LOS	BUS SCORE	BUS LOS
COMMERCE - HOUSTON	1.80	B	1.72	B	4.85	B
HOUSTON - TRAVIS	1.98	B	1.96	B	NA	NA
TRAVIS - PECAN	2.11	B	2.22	B	14.55	A
PECAN - MARTIN	2.30	B	2.80	C	13.89	A



Soledad



Main Avenue and Soledad— Commerce to Martin: Placemaking

The proposed concepts for Main Avenue and Soledad provide opportunities for **placemaking** in the area. The improvements to the travel way of both Main Avenue and Soledad need to be complemented with streetside treatments along the existing parking lots so these important downtown blocks are pleasant to walk along. The frontages along Houston, Travis and Pecan Street should all have some type of commercial activity, especially at the intersection corners. These can include food trucks with seating and shade, small book or flea markets, and other temporary activities that occupy minimal space along the parking lot edges.



Example images from other urban areas



Navarro— Villita to Convent

Navarro Street is a one-way northbound road with two travel lanes and one bus-only lane between Convent St. and Villita St. It carries approximately 9,000 vehicles per day, and more than 500 vehicles during the peak hour. There is no on-street parking or bike facilities on the road. Navarro is designated as a Principal Route on the street typology map

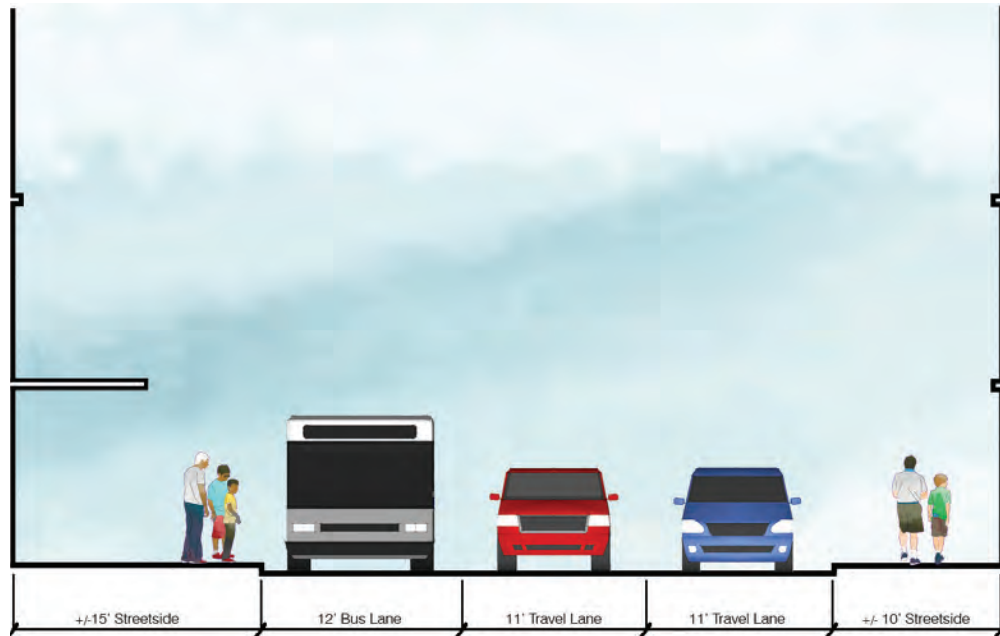


Figure 3-28: Navarro Existing Cross Section

The proposed improvements for Navarro Street remove the bus-only lane and reallocate the space to enhance the experience for pedestrians, transit users and bicyclists on the road. Two proposed concepts for Navarro Street were developed. Both include streetscaping elements. **Option A** provides inset on-street parking with curb extensions, sidewalk widening, and a wide outside lane with sharrow markings. The curb extensions can be lengthened at bus stop locations to provide additional space for shelters and other amenities. **Option B** provides sidewalk widening and bike lanes but no on-street parking or curb extensions. Option A is the preferred option for Navarro Street because it provides on-street parking, complements the transit service on Navarro and still provides bike facilities. There is limited existing on-street parking in this area of Downtown, so adding on-street parking will be beneficial to surrounding businesses and encourages new retail.

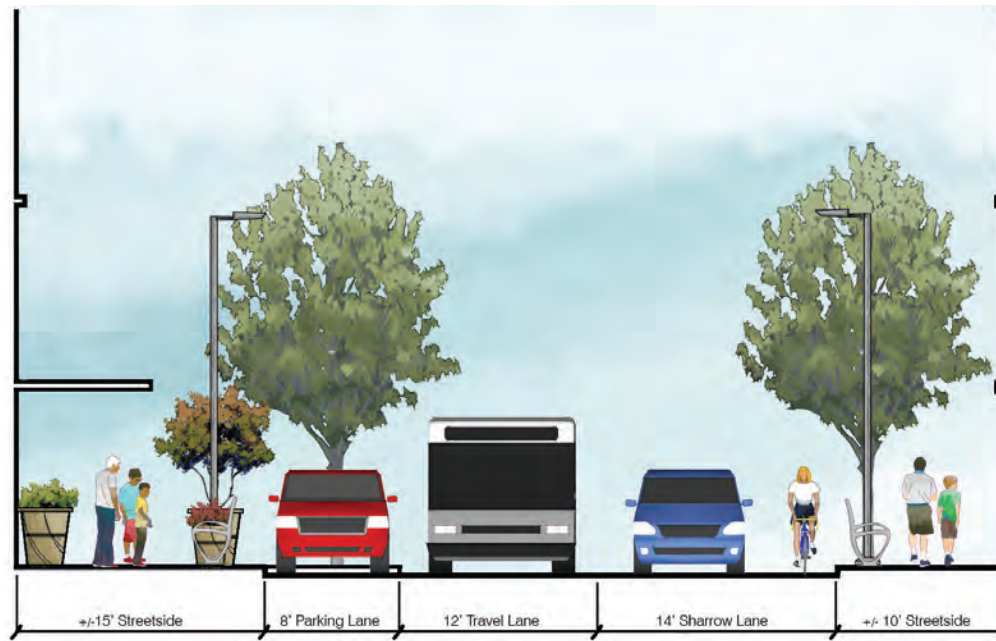


Figure 3-29: Navarro Proposed Option A Cross Section

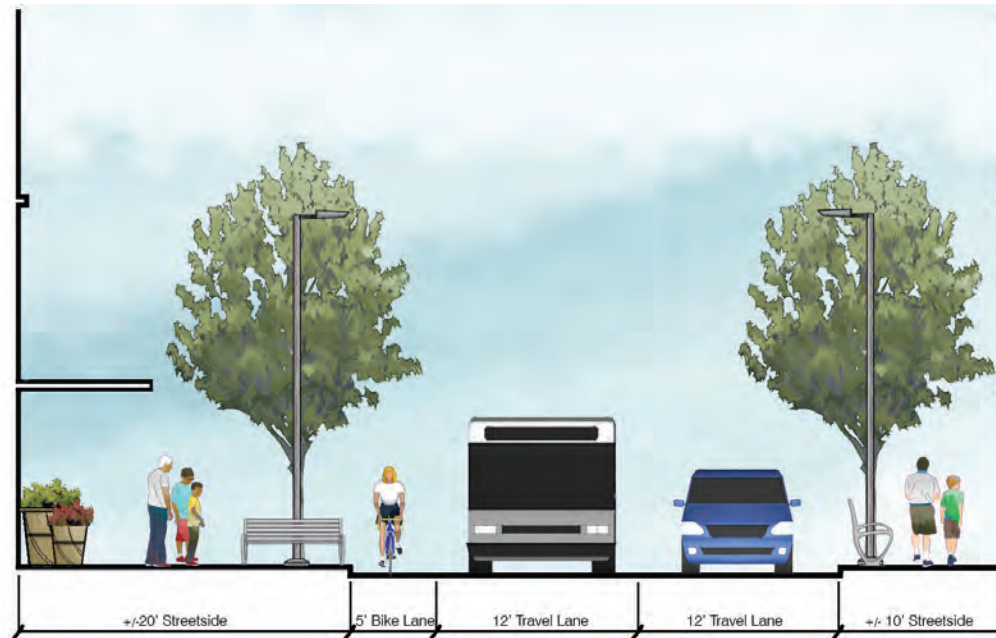


Figure 3-30: Navarro Proposed Option B Cross Section

VIA is proposing to significantly reduce the number of buses on Navarro. VIA's proposed Downtown service plan will result in seven to ten buses per hour on Navarro Street during the peak hours. The traffic models assumed 16 buses per hour to conservatively account for future bus traffic. The future traffic operations were not negatively affected by mixing bus traffic in the remaining two traffic lanes. All intersections operate at LOS C or better in 2020 for the Build condition with the proposed improvements.

LOS RESULTS (2020) - NAVARRO AVENUE				
CROSS STREET	NO BUILD		BUILD	
	AM	PM	AM	PM
NUEVA	B	C	B	C
VILLITA	B	A	B	A
MARKET	A	B	A	C
COMMERCE	B	B	B	B
CROCKETT	A	A	A	A
COLLEGE	A	A	A	A
HOUSTON	B	B	B	B
TRAVIS	B	A	B	A
PECAN	B	B	B	B
MARTIN	B	C	B	C

The multimodal LOS results show that the pedestrian and bus LOS indicates a significant improvement to the environment for both of these users with the wider sidewalks, improved stop locations, and streetscaping elements. The bike LOS is at C which shows an improved experience for a cyclist with the incorporation of sharrow and a wide lane, but the improvement is not as beneficial as a dedicated bike lane would show.

MMLOS RESULTS (2020 BUILD) - NAVARRO AVENUE NB AM						
SEGMENT	SCORES					
	BIKE SCORE	BIKE LOS	PED SCORE	PED LOS	BUS SCORE	BUS LOS
VILLITA – MARKET	3.28	C	1.82	B	8.09	A
MARKET – COMMERCE	3.46	C	2.50	C	7.72	A
COMMERCE – CROCKETT	3.48	C	2.54	C	7.72	A
CROCKETT – COLLEGE	2.00	B	1.99	B	8.09	A
COLLEGE – HOUSTON	3.35	C	1.91	B	8.09	A
HOUSTON – TRAVIS	3.31	C	1.86	B	8.09	A
TRAVIS – PECAN	3.21	C	2.16	B	8.09	A
PECAN – MARTIN	3.24	C	2.20	B	8.09	A

St. Mary's— Villita to Convent

St. Mary's Street is a one-way southbound road with three lanes between Convent St. and Villita St., and it forms a one-way couplet with Navarro Street. Similar to Navarro, St. Mary's has two travel lanes and one bus-only lane. It carries over 7,300 vehicles per day and approximately 700 vehicles during the peak hour. The existing sidewalk along the east side of the road is somewhat narrow ranging from 8 to 12 feet wide, and no on-street parking or bike facilities are provided. St. Mary's Street is designated as a Principal Route on the street typology map.

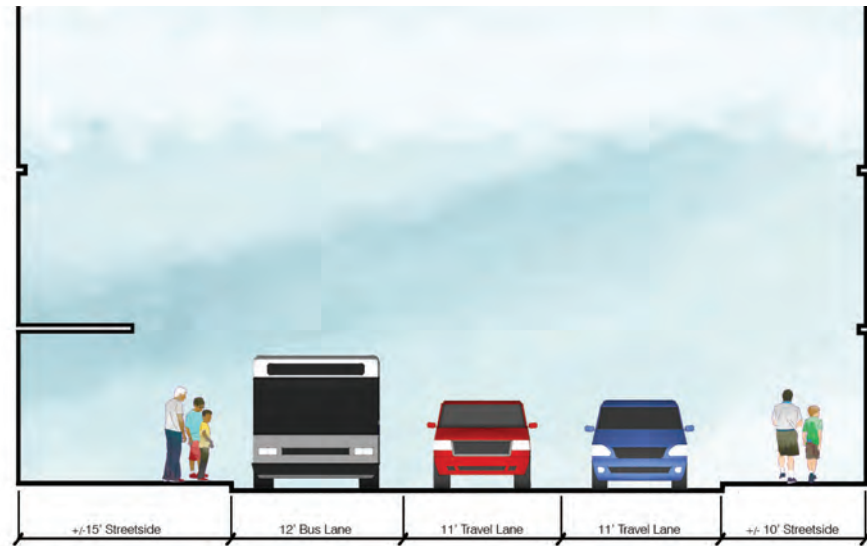


Figure 3-31: St. Mary's Existing Cross Section

Similarly to Navarro Street, the proposed concept for St. Mary's Street removes the bus-only lane. However, unlike Navarro Street, dedicated bike lanes are being provided along with the wider sidewalks and streetscaping elements. No on-street parking is proposed. The sidewalks will be widened primarily on the east side to transform the existing sidewalk into a more inviting pedestrian friendly environment.

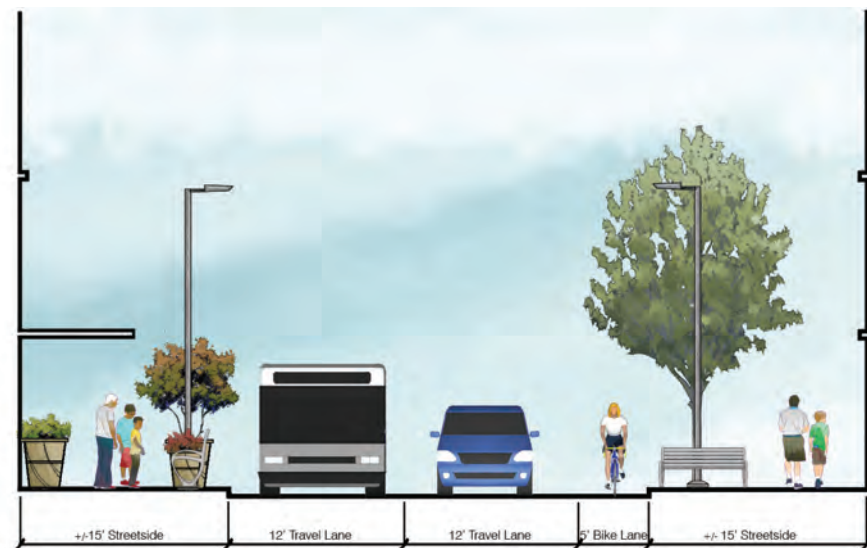


Figure 3-32: St. Mary's Proposed Cross Section



Figure 3-33: Existing St. Mary's



Figure 3-34: St. Mary's Proposed Concept

Although this concept does not include on-street parking, a more detailed survey of the available right-of-way may show sufficient right-of-way width to accommodate parking. VIA is proposing to significantly reduce the number of buses on St. Mary's. VIA's proposed Downtown service plan will result in seven to thirteen buses per hour on St. Mary's Street during the peak hours. The traffic models assumed 16 buses per hour to conservatively account for future bus traffic. The future traffic operations were not negatively affected by mixing bus traffic in the remaining traffic lanes. All intersections operate at LOS C or better in 2020 for the Build condition with the proposed improvements except at the intersection with Pecan Street, which operates at LOS D, both with and without the proposed improvements.

The pedestrian and bus LOS indicates a significant improvement to the environment for both of these users with the wider sidewalks, improved stop locations, and streetscaping elements. The bike LOS is very good at LOS B based on the dedicated bike lanes. This result is better than what is shown for Navarro with sharrows.

LOS Results (2020) - St. Mary's Street				
CROSS STREET	NO BUILD		BUILD	
	AM	PM	AM	PM
PEREIDA	B	B	B	B
ALAMO	B	B	B	B
CÉSAR CHÁVEZ	E	E	D	C
NUEVA / NAVARRO	B	C	B	C
VILLITA	B	A	B	A
MARKET	A	B	A	B
COMMERCE	B	B	B	B
COLLEGE	B	A	A	A
HOUSTON	B	B	B	B
TRAVIS	B	B	B	B
PECAN	D	D	D	D
MARTIN	A	B	B	B
CONVENT	A	A	A	B

MMLOS Results (2020 Build) - St. Mary's Street SB AM						
SEGMENT	SCORES					
	BIKE SCORE	BIKE LOS	PED SCORE	PED LOS	BUS SCORE	BUS LOS
MARTIN – PECAN	1.11	A	2.13	B	8.09	A
PECAN – TRAVIS	1.83	B	2.30	B	7.72	A
TRAVIS – HOUSTON	1.84	B	2.32	B	8.09	A
HOUSTON – COLLEGE	1.94	B	2.45	B	8.09	A
COLLEGE – COMMERCE	1.96	B	2.47	B	8.09	A
COMMERCE – MARKET	1.89	B	2.38	B	8.09	A
MARKET – VILLITA	1.93	B	2.42	B	8.09	A

Frio Street— Guadalupe to Martin

Frio Street is a four-lane divided north-south roadway west of Interstate 35 **Figure 3-35.** It provides direct access to the University of Texas San Antonio (UTSA) Downtown campus and will serve the proposed Westside Multimodal Transit Center. Frio carries over 11,000 vehicles per day and over 900 vehicles during the peak hour. Frio is listed as a Principal Route on the street typology map.

A portion of Frio, from César Chávez Boulevard to Houston Street, is identified as a 2012 Bond project. The proposed concept for Frio Street consists of reducing the inside lane widths and, if necessary, the median/center turn lane, to provide a wide outside lane with sharrow markings. Additional improvements include street plantings and furnishings, pedestrian lighting, wider sidewalks and improved pedestrian crossings **Figure 3-36.** While not listed on the City’s Bike Plan, bike facilities were deemed important on Frio because of its proximity to UTSA and the Westside Multimodal Transit Center and because of the absence of north-south bike routes on the west side of Downtown.

All intersections on Frio operate at LOS C or better for the Build condition with the projected 2020 volumes except at Commerce, which operates at LOS D both with and without the proposed improvements and Guadalupe Street which operates at LOS F in year 2020 even without the proposed improve-

ments. Guadalupe Street provides access over the railroad lines via an overpass. The volumes on all four approaches are heavy and left-turn lanes are present on all four approaches. Adding right-turn lanes on the eastbound and southbound approaches to accommodate heavy right turns would improve the LOS, however, widening the eastbound approach would require reconstructing the bridge. A right-turn lane could be added to the southbound approach of Frio and the LOS would improve from F to E during the PM peak hour. This improvement would require right-of-way acquisition.

The bus LOS is an indication of the amount of service that will be provided along Frio for transit users. The bike LOS shows the incorporation of the sharrows, which provide a benefit to cyclists with a wider outside lane and markings but not as advantageous as a bike lane. The pedestrian LOS is C which shows the benefit of the improved sidewalks and streetscaping elements.

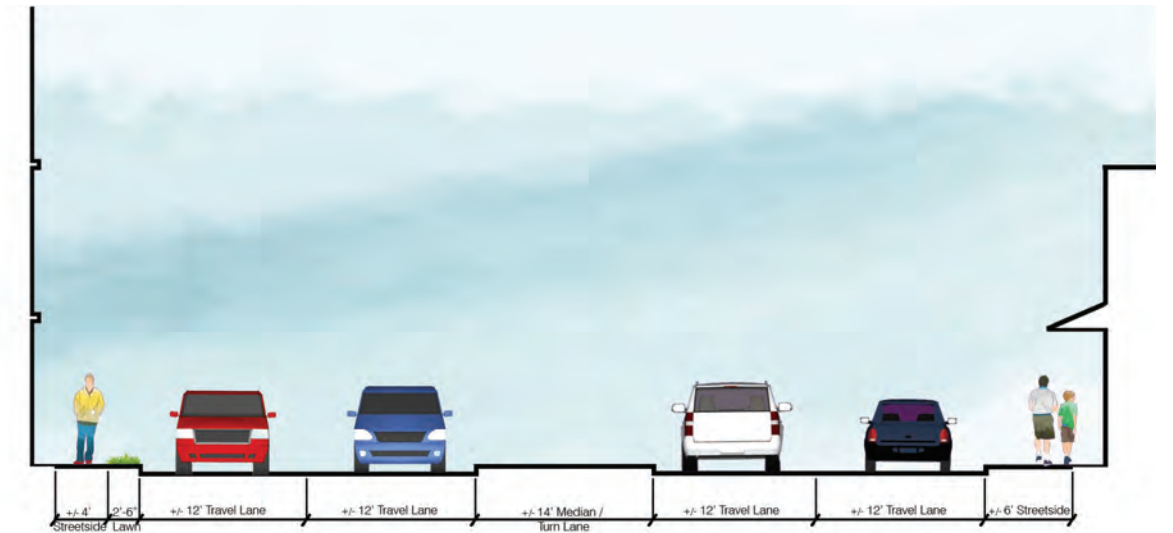


Figure 3-35: Frio Street Existing Cross Section

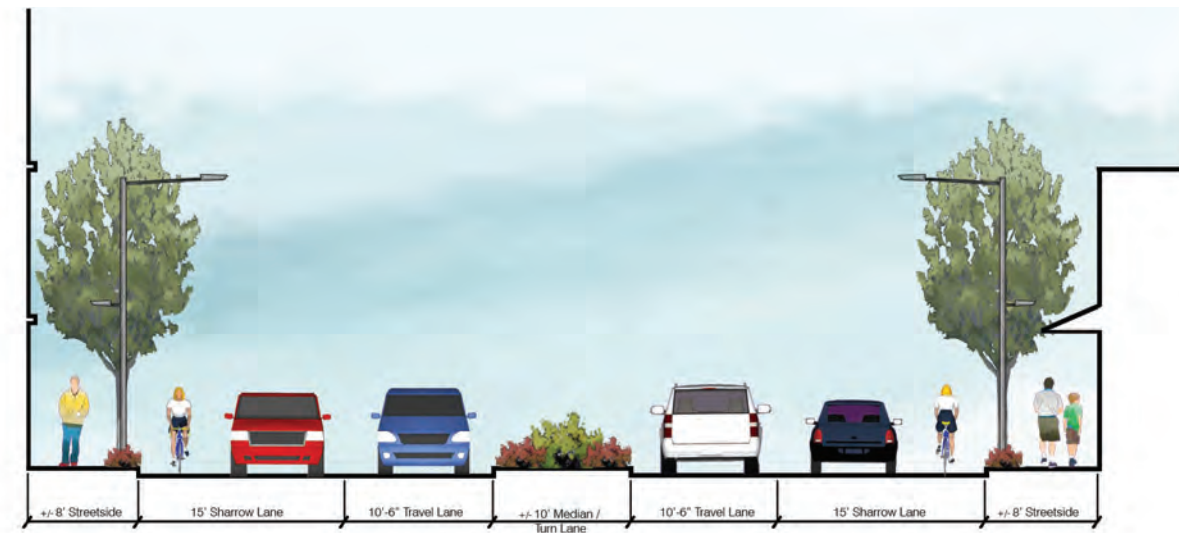
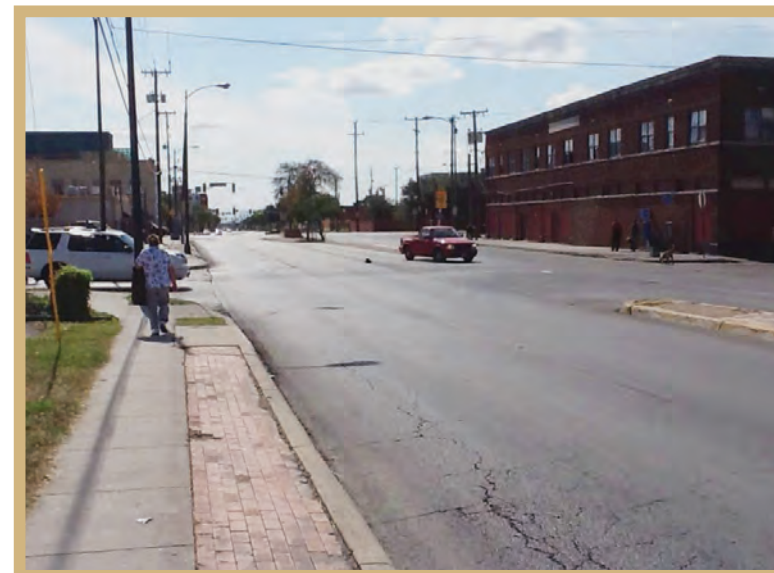


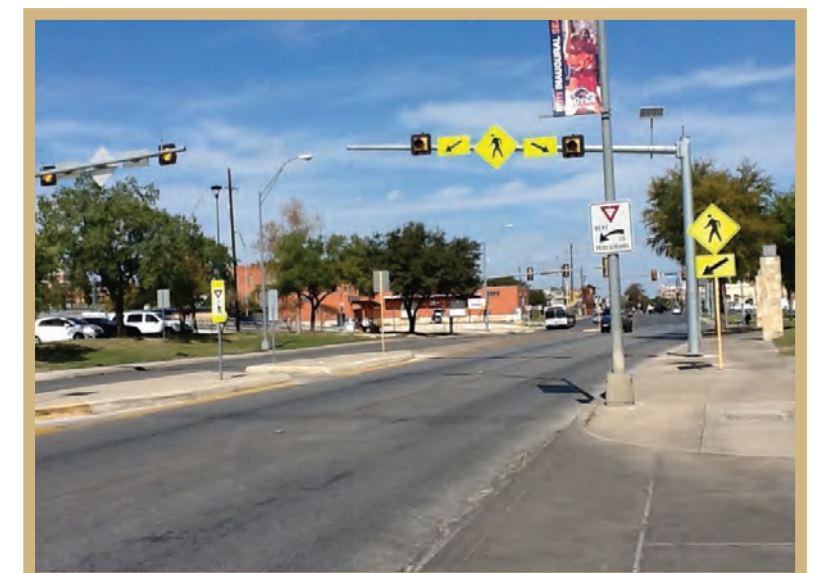
Figure 3-36: Frio Street Proposed Cross Section

LOS Results (2020) - Frio Street				
CROSS STREET	NO BUILD		BUILD	
	AM	PM	AM	PM
GUADALUPE	C	F	C	F
CÉSAR CHÁVEZ	B	B	B	B
BUENA VISTA	E	D	C	C
COMMERCE	C	D	C	D
MARTIN	C	C	C	C

MMLOS Results (2020 Build) - Frio Street NB AM						
SEGMENT	SCORES					
	BIKE SCORE	BIKE LOS	PED SCORE	PED LOS	BUS SCORE	BUS LOS
GUADALUPE – CÉSAR CHÁVEZ	3.65	D	2.88	C	4.41	B
CÉSAR CHÁVEZ – BUENA VISTA	3.67	D	2.94	C	3.53	C
BUENA VISTA – COMMERCE	3.67	D	2.96	C	5.29	B
COMMERCE – MARTIN	3.57	D	2.68	C	4.41	B



Sidewalk Conditions along Frio



Pedestrian Crossing on Frio at UTSA

Broadway— 3rd to Josephine

Broadway is a four-lane undivided north-south roadway on the northeast side of Downtown. Broadway serves as one of the primary entrances into the downtown and River North areas. Between 3rd Street and Newell Street, Broadway has four lanes with bike lanes and left-turn lanes at intersections. North of Newell Street, Broadway is a six-lane undivided roadway. Broadway carries over 13,400 vehicles per day and over 1,300 vehicles during the peak hour. Broadway is listed as a Principal Route and a Special Street on the street typology map. Broadway has been identified as a possible route for the proposed VIA Streetcar.

Broadway has experienced a recent surge in mixed-use development consisting of residential combined with retail uses currently under construction. The projects, 1221 Broadway, 1800 Broadway and the Mosaic will bring 650 residential units to the area. In addition, over 100,000 square feet of new office space is being constructed through the renovation of the ButterKrust Bakery Building.

Between 3rd and Newell, it is recommended to remove the bike lanes and to widen the sidewalks from 7 feet to 15 feet, consistent with the improvements identified in the River North Master Plan. On-street parking along both sides of Broadway is provided during off-peak hours (see **Figure 3-37** from the River North Master Plan). The parking lanes become travel lanes during peak periods. If the alignment of the proposed VIA Streetcar is on Broadway, it will run with mixed traffic in the outside lanes and on-street parking will not be permitted. The DTS recommends this proposed cross section also be continued north to Josephine Street. This will require the number of travel lanes to be reduced from six to four. Streetscaping improvements are also recommended.

While these proposed improvements will reduce the existing bicycle level of service on the road, they will improve the pedestrian level of service and on-street parking will support the existing and future development along the corridor. The River North Master Plan identifies the potential for high-density mixed-use developments on this section of Broadway which can significantly increase pedestrian traffic. The existing sidewalks are narrow with utility poles and other obstructions. If bike lanes are removed from Broadway, nearby bicycle

routes and bike lanes on Avenue B and Alamo Street provide a parallel route, so bicycle connectivity is not diminished. The City's Bike Plan does not show Broadway as a bike route in the downtown area.

The proposed mitigation measures identified in the River North Traffic Study (2010) should be implemented to provide acceptable levels of service for the projected volumes. Specifically, parking should be restricted on McCullough and Brooklyn at Broadway to allow for two eastbound and westbound lanes on McCullough and a dedicated westbound left-turn lane on Brooklyn. As volumes increase in the future due to the redevelopment in the downtown and River North areas, the signal timing on Broadway will likely need to be optimized to maintain acceptable levels of service. With these mitigation measures in place, the signalized intersections on Broadway will operate at LOS C or better with the projected 2020 volumes except at Newell and Josephine, where the intersections will operate at LOS D due to the reduction in travel lanes.

LOS RESULTS (2020) - BROADWAY				
CROSS STREET	NO BUILD		BUILD	
	AM	PM	AM	PM
MCCULLOUGH	B	F	B	B
BROOKLYN	B	B	B	C
JONES	B	B	B	B
NEWELL	D	B	D	D
JOSEPHINE	C	C	C	D

MMLOS Results (2020 Build) - Broadway NB PM						
SEGMENT	SCORES					
	BIKE SCORE	BIKE LOS	PED SCORE	PED LOS	BUS SCORE	BUS LOS
JONES – NEWELL	3.91	D	2.49	B	9.24	A
NEWELL – GRAYSON	4.13	D	3.45	C	9.26	A
GRAYSON – JOSEPHINE	4.17	D	3.77	D	8.40	A

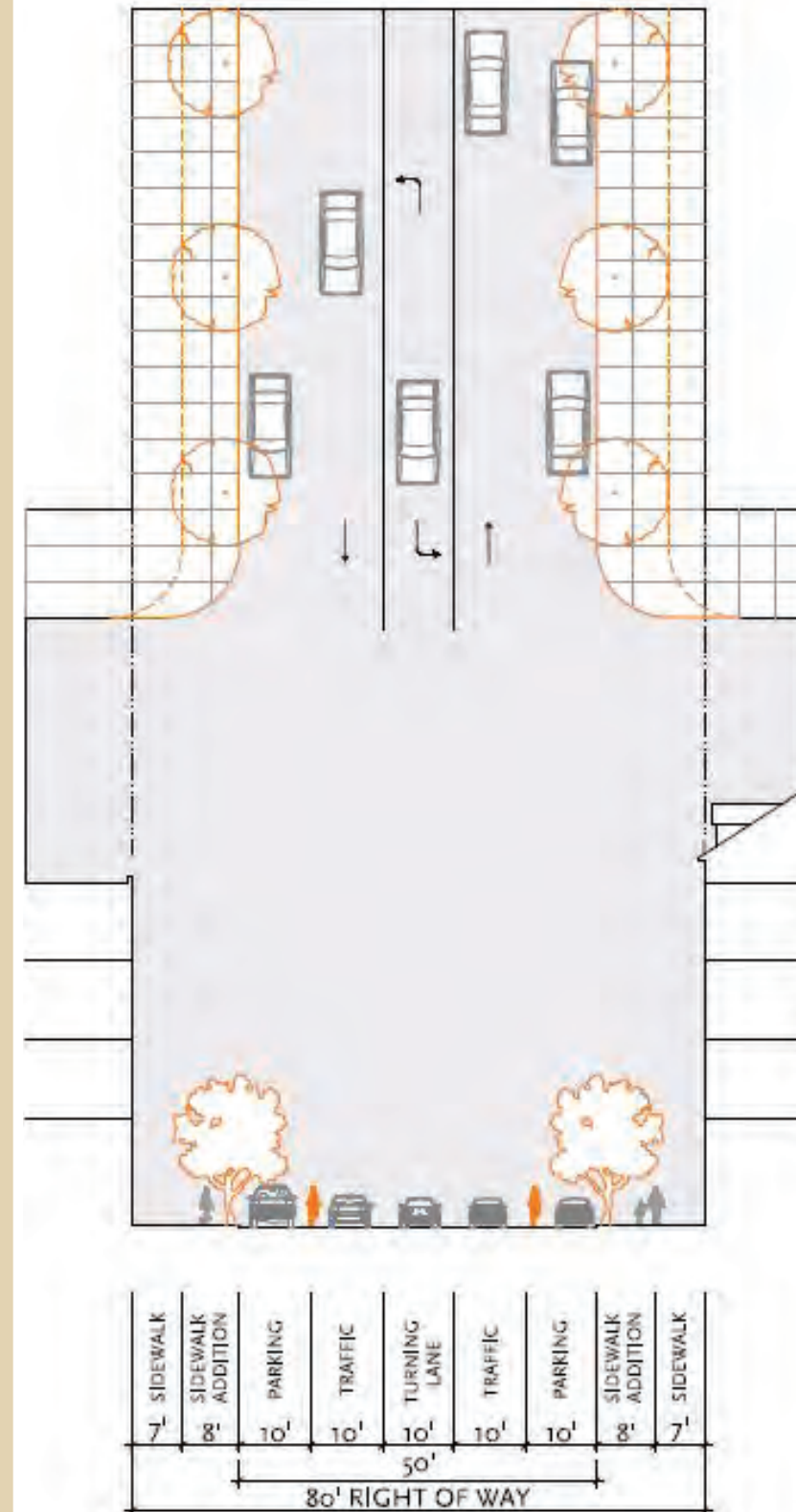


Figure 3-37: Broadway Concept
Source: River North Master Plan



Movement	free
Design Speed	35 mph
Pedestrian Crossing Time	10 seconds
R.O.W. Width	80'
Pavement Width	50'
Median	none
Traffic Lanes	2; 1 each way
Parking	both sides, parallel [1]
Curb Type	vertical
Curb Radii	Actual - 10' Effective - 18'
Sidewalk Width	15' [2]
Planter Size	4' x 4'
Planter Type	wells at 28" on center
Planting	trees (min 36" box size)
Tree Species	see page 2-50 (Street Tree Plan)
Street Lighting	14 ft tall poles at 50' o.c.

* Modifications to the existing street are shown in orange

[1] No parking South Bound 7 AM - 9 AM
No parking North Bound 4 PM - 7 PM

[2] South of McCullough, sidewalks become 14' wide

Above: Photo of existing street prior to modification

Left: Plan/Section Diagram

Lone Star Boulevard—Roosevelt to Probrandt

Lone Star Boulevard is a two lane undivided east-west roadway located in the south section of the overall downtown study area and within the Priority Growth Area referred to as Near River South. Lone Star Boulevard has no curbing and has poorly accessible sidewalks, **Figure 3-38**. Lone Star carries over 2,300 vehicles per day and over 260 vehicles during the peak hour. Lone Star Boulevard is listed as a Downtown Essential street on the street typology map.

The proposed improvements for Lone Star Boulevard consist primarily of better defining the travel lanes with pavement markings, adding sharrow markings, adding stormwater planters where possible, and providing better pedestrian accessibility, **Figure 3-39**. There is an existing retaining wall running along the south side of the road. It is recommended to relocate this retaining wall in order to rebuild the sidewalk. Lone Star Boulevard is identified in the City’s Bike Plan as a signed bike route. A wide travel lane with sharrow markings can be accommodated along the route and is recommended. Lone Star Boulevard provides direct access to the shared-use path along the San Antonio River at the dam near Mission Road.

All intersections will operate at LOS C or better in 2020 for the Build condition with the proposed improvements. With future development, it is expected that over time the corridor will transition from industrial to increased residential, which will allow for other treatments such as wider sidewalks, street trees, and raised medians.

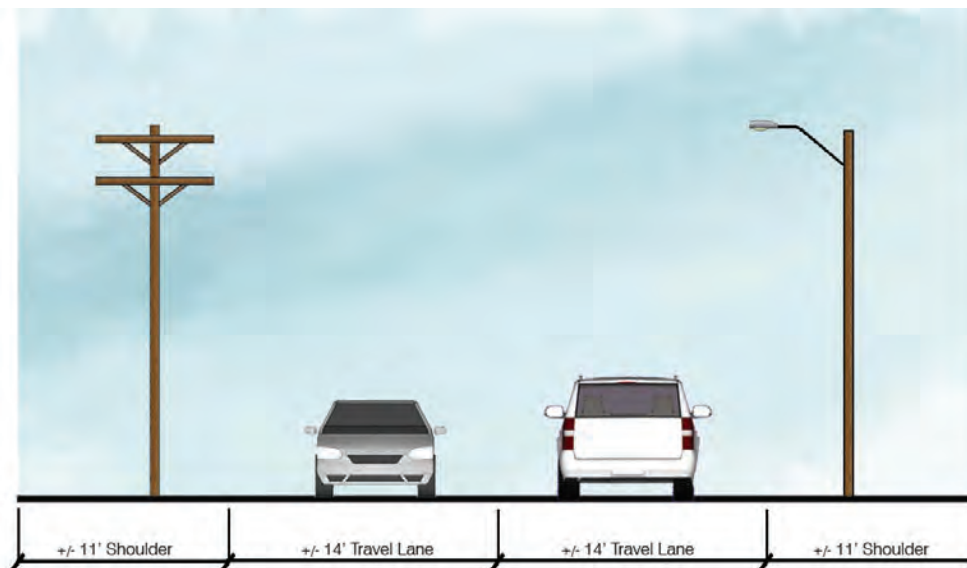


Figure 3-38: Lone Star Existing Cross Section

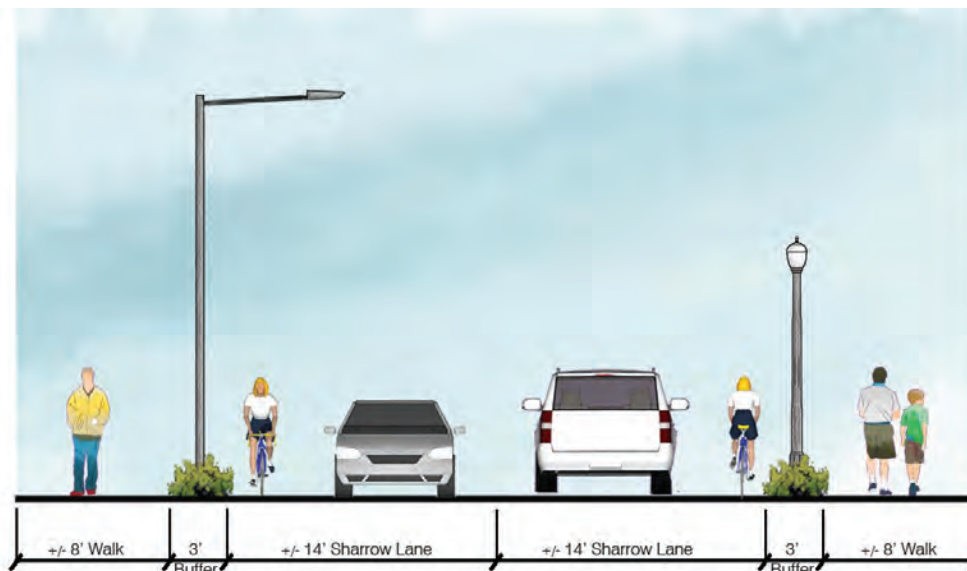


Figure 3-39: Lone Star Proposed Cross Section



Former Lone Star Brewery

The multimodal LOS analysis results show the improved pedestrian LOS C due to eliminating gaps in sidewalks and adding a separation buffer with stormwater planters. The Bike LOS C is reflective of the sharrows which provide a facility for cyclists but not as beneficial as bike lanes. The bus LOS N/A is due to an absence of transit service along this section of Lone Star Boulevard.

LOS Results (2020) - Lone Star Blvd				
CROSS STREET	NO BUILD		BUILD	
	AM	PM	AM	PM
PROBANDT	C	B	C	B
UNDERPASS	C	B	C	B

MMLOS Results (2020 Build) - Lone Star Blvd EB AM						
SEGMENT	SCORES					
	BIKE SCORE	BIKE LOS	PED SCORE	PED LOS	BUS SCORE	BUS LOS
PROBANDT – ST. MARY’S	3.29	C	2.40	B	N/A	N/A



Lone Star Boulevard

Probandt— Lone Star Boulevard to Alamo

Probandt is a north-south two-lane street located in the south section of the overall downtown study area and within the Priority Growth Area referred to as Near River South, **Figure 3-40**. It is identified as a Downtown Essential street on the street typology map. Probandt carries over 9,500 vehicles per day and over 1,000 vehicles during the peak hour.

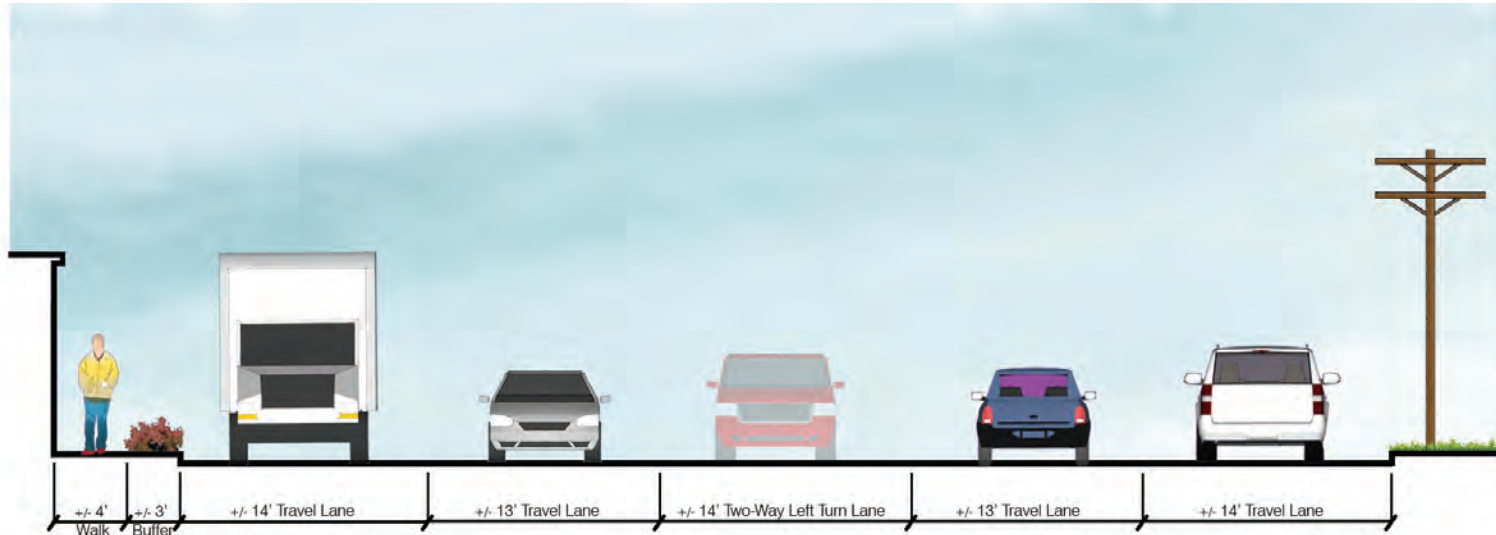


Figure 3-40: Probandt Existing Cross Section

The proposed concept for Probandt between Alamo and Lone Star consists of restriping the wide travel lanes to provide bike lanes, improving existing sidewalks, constructing new sidewalks where none are present, and installing illumination.

Figure 3-41.

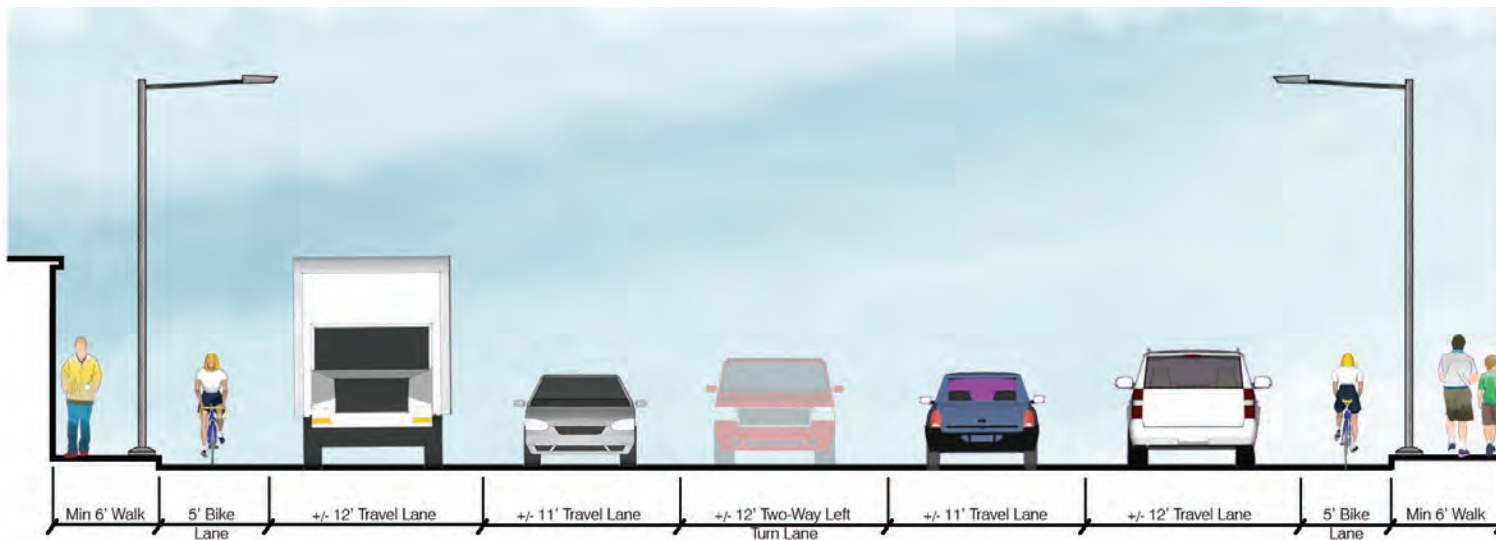


Figure 3-41: Probandt Proposed Cross Section

The intersection of Alamo and Probandt operates at LOS E in 2020 for the Build condition with the proposed improvements and traffic signal optimization. The intersection will operate at LOS F in 2020 without the improvements due to heavy volumes on three of the four approaches and the truck traffic entering and exiting the flour mill driveway on the north side of the intersection. The City has planned improvements for the intersection that will enhance safety and simplify the intersection by locating the approaches closer to the center and signaling all movements. This project will allow for a drainage improvement to be constructed within the right-of-way. By signaling all of the movements, the intersection safety is improved, but the delay at the intersection increases. The intersection improvement plans were included in the future year analysis.

The multimodal LOS analysis results show an improved bike LOS of B due to the proposed bike lanes. The pedestrian LOS shows the benefit from the improved sidewalks and the separation distance provided by the bike lanes. There is limited bus service along Probandt which is reflected in the bus LOS of D.

LOS Results (2020) - Probandt				
CROSS STREET	NO BUILD		BUILD	
	AM	PM	AM	PM
LONE STAR	C	B	C	B
ALAMO	F	D	E	D

MMLOS Results (2020 Build) - Probandt SB PM						
SEGMENT	SCORES					
	BIKE SCORE	BIKE LOS	PED SCORE	PED LOS	BUS SCORE	BUS LOS
ALAMO - LONE STAR	2.41	B	3.34	C	2.32	D

Nueva— Pecos La Trinidad to Alamo

Nueva is a four-lane undivided east-west roadway running from Pecos La Trinidad to St. Mary's, (Figure 3-42) except between Laredo Street and Main Avenue where it is a two-lane roadway. Between St. Mary's and Alamo, Nueva is a four-lane divided roadway. Nueva carries over 3,900 vehicles per day and over 350 vehicles during the peak hour. The street typology map shows Nueva as a Downtown Activity street, The proposed improvements on Nueva between Pecos La Trinidad and St. Mary's consist of creating a two-lane road with bike lanes and wider sidewalks along the north side. The northern sidewalk was chosen for widening since it is generally narrower and has more obstructions than the sidewalk along the south side of Nueva.

Nueva is classified as a signed bike route on the City's Bike Plan. The DTS recommends upgrading to bike lanes to take advantage of the connections to UTSA and HemisFair Park, as well as intersecting bike facilities on Frio, Santa Rosa, Main, and Soledad. Nueva provides cyclists with an east-west alternative to higher volume roads such as Commerce, Market, and César Chávez. Streetscaping improvements are also recommended, Figure 3-43.

East of St. Mary's, the proposed improvements, recommended under the HemisFair Complete Streets project, consist of removing a travel lane in each direction and the median to provide reverse angle parking along both sides and single 15-foot wide travel lanes in each direction. If the alignment of the proposed VIA Streetcar is placed on Nueva, these improvements would not be able to be implemented between Alamo and Santa Rosa, because all four travel lanes would likely be needed. Due to the narrow lane widths and available right-of-way, few options are possible for pedestrian or bicycle improvements without removing a travel lane.

The signalized intersections along Nueva operate at LOS C or better in 2020 for the Build condition with the proposed improvements, except at Santa Rosa, which operates at LOS D both with and without the proposed improvements. The exclusive pedestrian phase at the intersection of Flores and Nueva was removed to improve the vehicular LOS from F for the No Build condition to LOS C for the Build condition.

The multimodal LOS analysis was performed along a representative section of Nueva that is not part of the HemisFair Complete Streets project. The section from Main Plaza/ Dwyer to Santa Rosa was evaluated based on the assumption that the streetcar would not be on Nueva. The bike LOS is B which is indicative of the bike lanes proposed and the pedestrian LOS shows the benefit of wider sidewalks and streetscaping elements. The bus LOS is also good based on the transit service along Nueva.

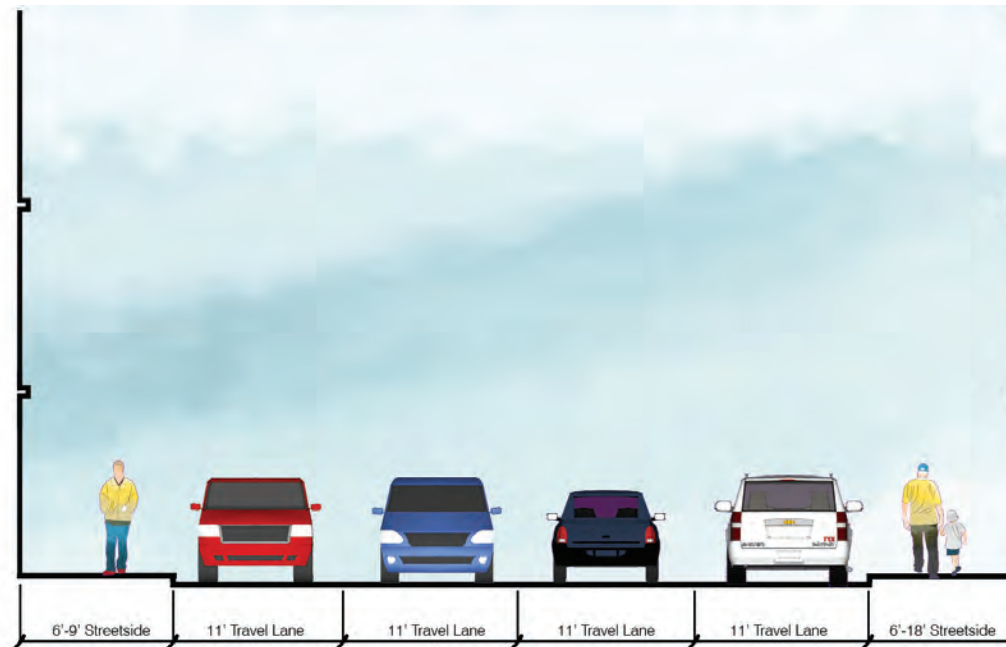


Figure 3-42: Nueva Existing Cross Section –Pecos La Trinidad to St. Mary's

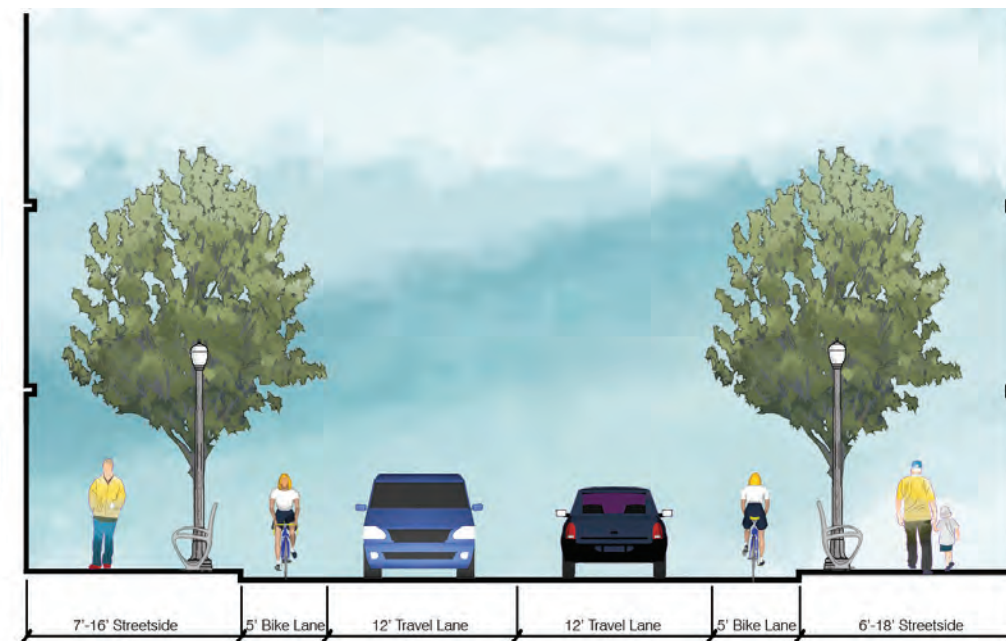


Figure 3-43: Nueva Proposed Cross Section –Pecos La Trinidad to St. Mary's

LOS Results (2020) - Nueva				
CROSS STREET	NO BUILD		BUILD	
	AM	PM	AM	PM
PECOS LA TRINIDAD	A	A	A	A
SANTA ROSA	D	D	D	D
FLORES	F	F	C	C
MAIN AVENUE	B	B	B	B
MAIN PLAZA	A	B	A	B
NAVARRO	B	C	B	C
PRESA	B	C	B	C
ALAMO	C	A	C	C

MMLOS Results (2020 Build) - Nueva EB AM						
SEGMENT	BIKE SCORE	BIKE LOS	PED SCORE	PED LOS	BUS SCORE	BUS LOS
SANTA ROSA – FLORES	2.07	B	2.64	C	4.63	B
FLORES – MAIN AVENUE	2.03	B	2.60	C	4.63	B
MAIN AVENUE – MAIN PLAZA	1.78	B	2.24	B	4.85	B

St. Mary's Street (South) – Roosevelt to Nueva

This section of St. Mary's was recently improved, therefore short-term improvements should consist of streetscaping elements that will support businesses. A portion of St. Mary's travels through the Priority Growth Area identified as HemisFair and César Chávez Corridor. Streetscaping elements will attract and support businesses. Widening will be required to increase sidewalk widths and provide bike facilities. At the time the roadway is reconstructed, the sidewalks should be widened to 8 feet where feasible and the outside lanes should be increased and sharrow markings added in order to accommodate cyclists. Until bike facilities are constructed, Presa Street can serve as an alternate route for cyclists.

Jones— Alamo to Camden

Jones has two travel lanes with parking on both sides in the section between Broadway and Alamo. It has four travel lanes from Broadway to Avenue B and two lanes without parking from Avenue B to Camden, **Figures 3-44, 45, and 46**. Jones is an east-west street located in the River North area which has been identified as a Priority Growth Area. Jones provides access to the San Antonio Museum of Art, located on the north side of the street and also provides access to Maverick Park and the Museum Reach section of the River Walk. Jones carries over 2,100 vehicles per day and over 170 vehicles during the peak hour. The street typology map labels Jones as a Downtown Lifestyle street and a Special Street.

The proposed concept for Jones reduces a travel lane in each direction along the 4-lane portion, to create a two-lane street with bike lanes, parking and streetscaping elements. Parallel parking with sharrows and wider lane widths are proposed on Jones between Alamo and Broadway, adjacent to Maverick Park. Reverse angle parking in conjunction with bike lanes are proposed between Broadway and Avenue B. Bike lanes are continued from Avenue B to Camden **Figures 3-47, 48, and 49**. Jones is not included in the City’s Bike Plan, however, bike facilities were considered desirable due to the connections with existing or proposed bike facilities along the Museum Reach, North St. Mary’s, Camden, Newell and Alamo Streets. Installing bike lanes on Jones would improve the overall connectivity of bike facilities in the River North area. In addition, a B-Cycle station is located at the San Antonio Museum of Art.

All signalized intersections operate at LOS C or better in 2020 for the Build condition with the proposed improvements.

LOS Results (2020) - Jones Avenue				
CROSS STREET	NO BUILD		BUILD	
	AM	PM	AM	PM
CAMDEN	F	C	C	C
BROADWAY	B	B	B	B

The multimodal LOS analysis results indicate a bike LOS C in the section with sharrows which improves to an A for the remainder of Broadway where bike lanes are provided. The pedestrian LOS is very good at LOS A and B due to the widened sidewalks, streetscaping elements and the separation buffer created by the on-street parking and bike lanes. The bus LOS is reflective of the limited transit service along Jones.

MMLOS Results (2020 Build) - Jones Avenue WB PM						
SEGMENT	SCORES					
	BIKE SCORE	BIKE LOS	PED SCORE	PED LOS	BUS SCORE	BUS LOS
ALAMO - BROADWAY	2.77	C	1.65	B	1.21	E
BROADWAY - AVENUE B	0.50	A	1.50	A	1.27	E
AVENUE B - CAMDEN	0.90	A	2.14	B	1.21	E



Cyclists on Jones Avenue



San Antonio Museum of Art B-Cycle Station



Jones Avenue



River Walk Access on Jones Avenue

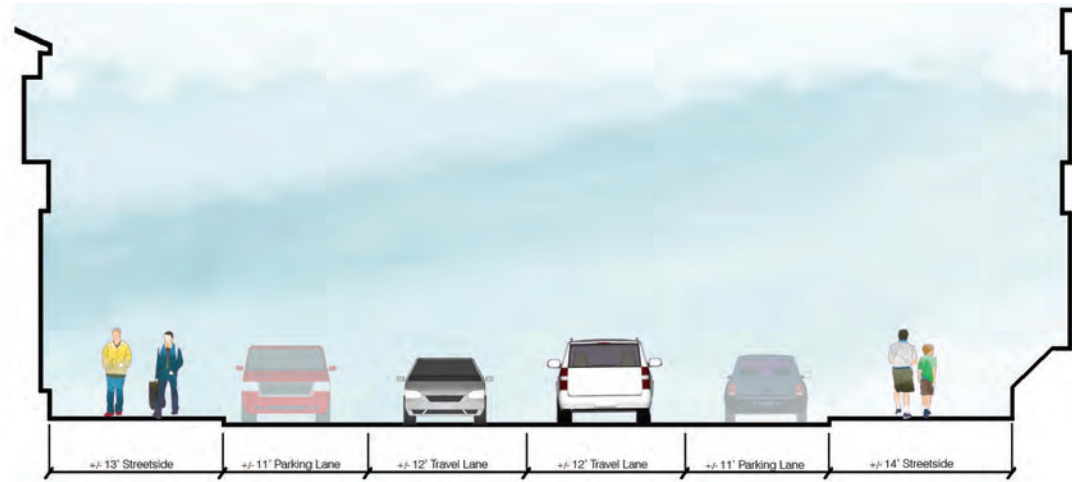


Figure 3-44: Jones Existing Cross Section – Alamo to Broadway

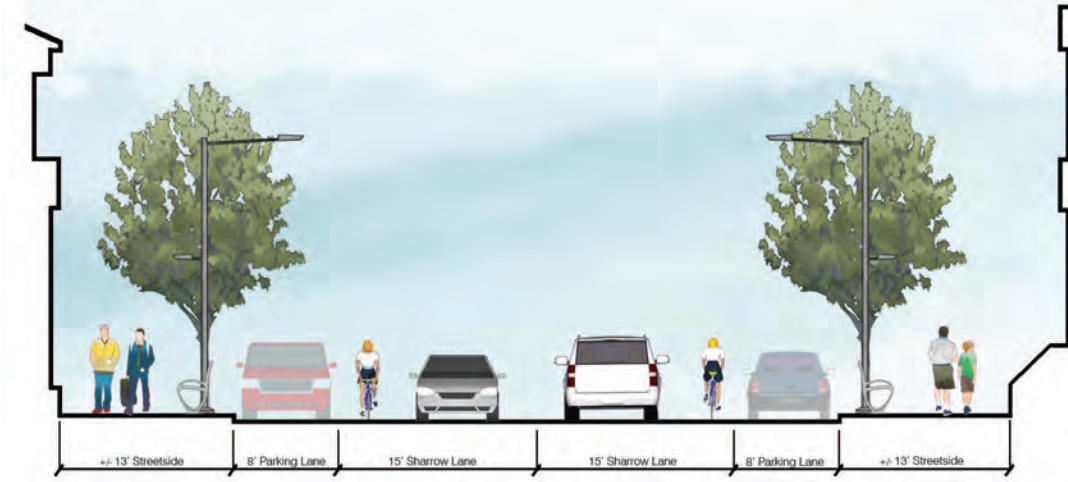


Figure 3-47: Jones Proposed Cross Section – Alamo to Broadway

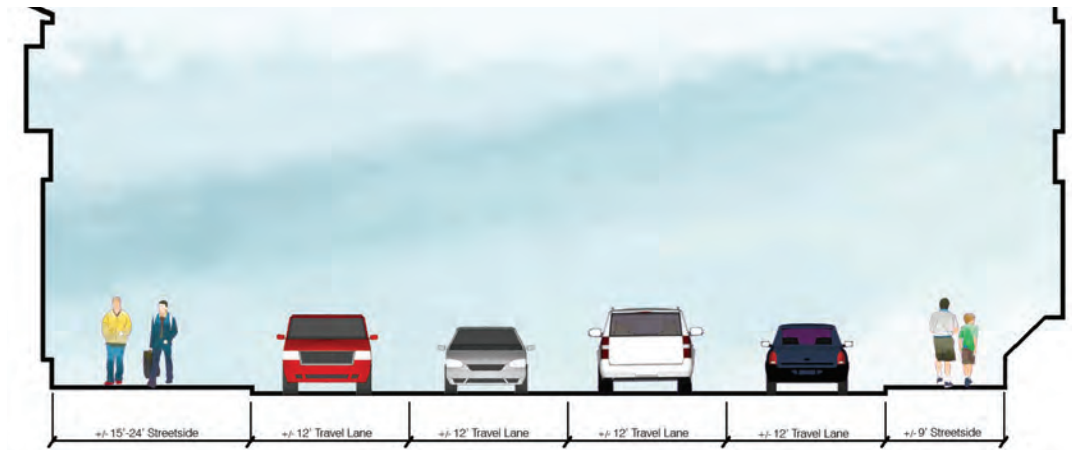


Figure 3-45: Jones Existing Cross Section – Broadway to Avenue B

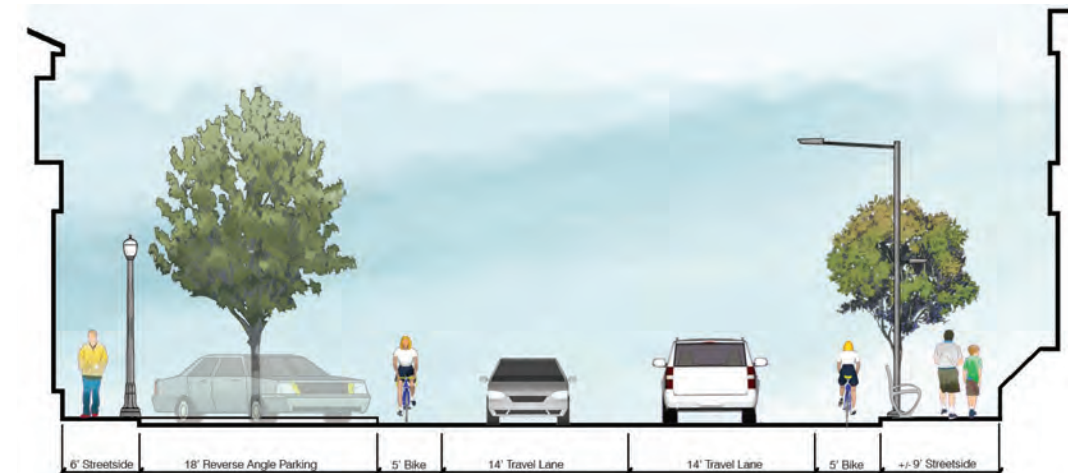


Figure 3-48: Jones Proposed Cross Section – Broadway to Avenue B

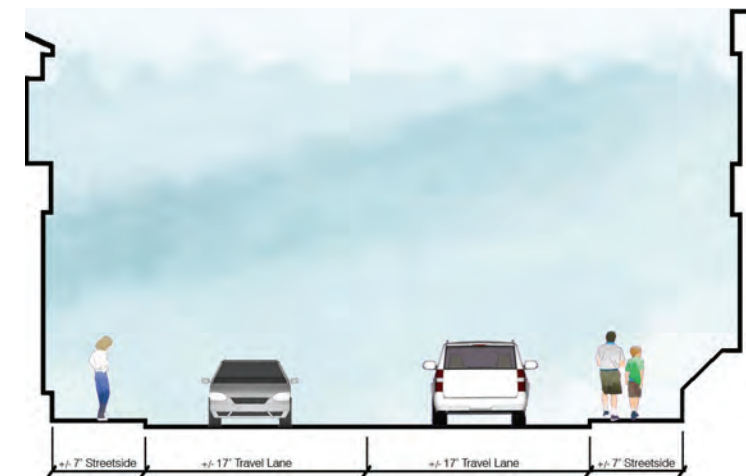


Figure 3-46: Jones Existing Cross Section – Avenue B to Camden

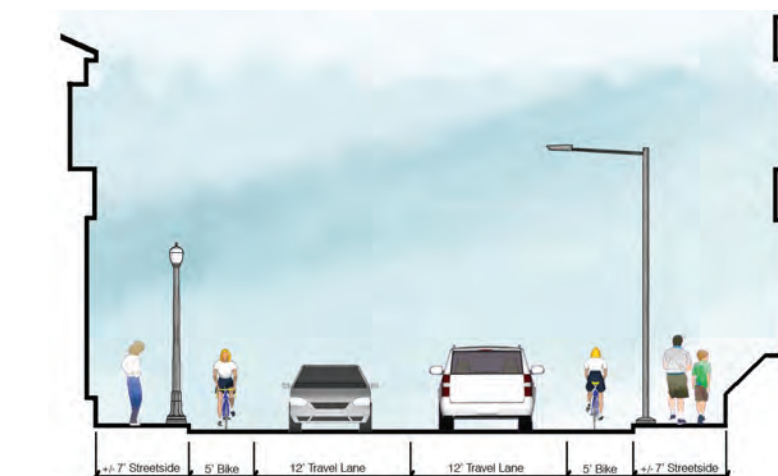


Figure 3-49: Jones Proposed Cross Section – Avenue B to Camden

RECONFIGURING COMPLEX INTERSECTIONS

PEDESTRIAN AND BICYCLE SAFETY, GATEWAY FEATURES, AND ROUTE CLARITY

Houston, Bowie, Star Intersection

The intersection of Houston, Bowie, and Star is currently a signalized five-legged intersection serving as a gateway into Downtown from Interstate 37, and providing access to parking for the Alamo. The DTS recommends this intersection be reconstructed as a roundabout to eliminate the inefficient signal operation and provide a better, more visible gateway into Downtown. The roundabout will operate with acceptable levels of service in 2020 but will require some right-of-way acquisition from the surrounding properties.

Houston, 3rd, and Bonham Intersection

The intersection of Houston, 3rd, and Bonham is currently comprised of two closely spaced intersections consisting of a signalized four-legged intersection at Houston and Bonham and an unsignalized T-intersection at Houston and 3rd Street. Houston Street and 3rd Street are both part of the continuous Martin Street corridor.

The Alamo Mission backs onto the southwest corner of the intersection, and the signing on Interstate 37 directs traffic destined for the Alamo Mission to exit onto Houston Street. However, when drivers reach Houston Street, they cannot turn left to reach the Alamo Mission. The intersection is currently configured in a way that does not allow space for a left-turn lane and Houston Street between Alamo and 3rd/Bonham Street is one-way eastbound. This results in driver confusion and needless circulation resulting in increased traffic in the area.

Installation of a roundabout at this intersection in conjunction with converting this block of Houston Street from one-way to two-way operation is recommended to improve wayfinding and provide a visual gateway to the Alamo Mission from the east. The roundabout would eliminate the need for left-turn storage at the intersection, while still allowing drivers to “turn left” for direct access to the western segment of Houston Street, and to the Alamo. Additionally the roundabout improves safety by removing traditional left-turns and creates opportunities for placemaking

Figure 3-51. Some right-of-way will be required for the roundabout, and the City, would need to coordinate with the Daughters of the Republic of Texas (DRT) to retain some or all of the right-of-way along the south side of Houston Street.

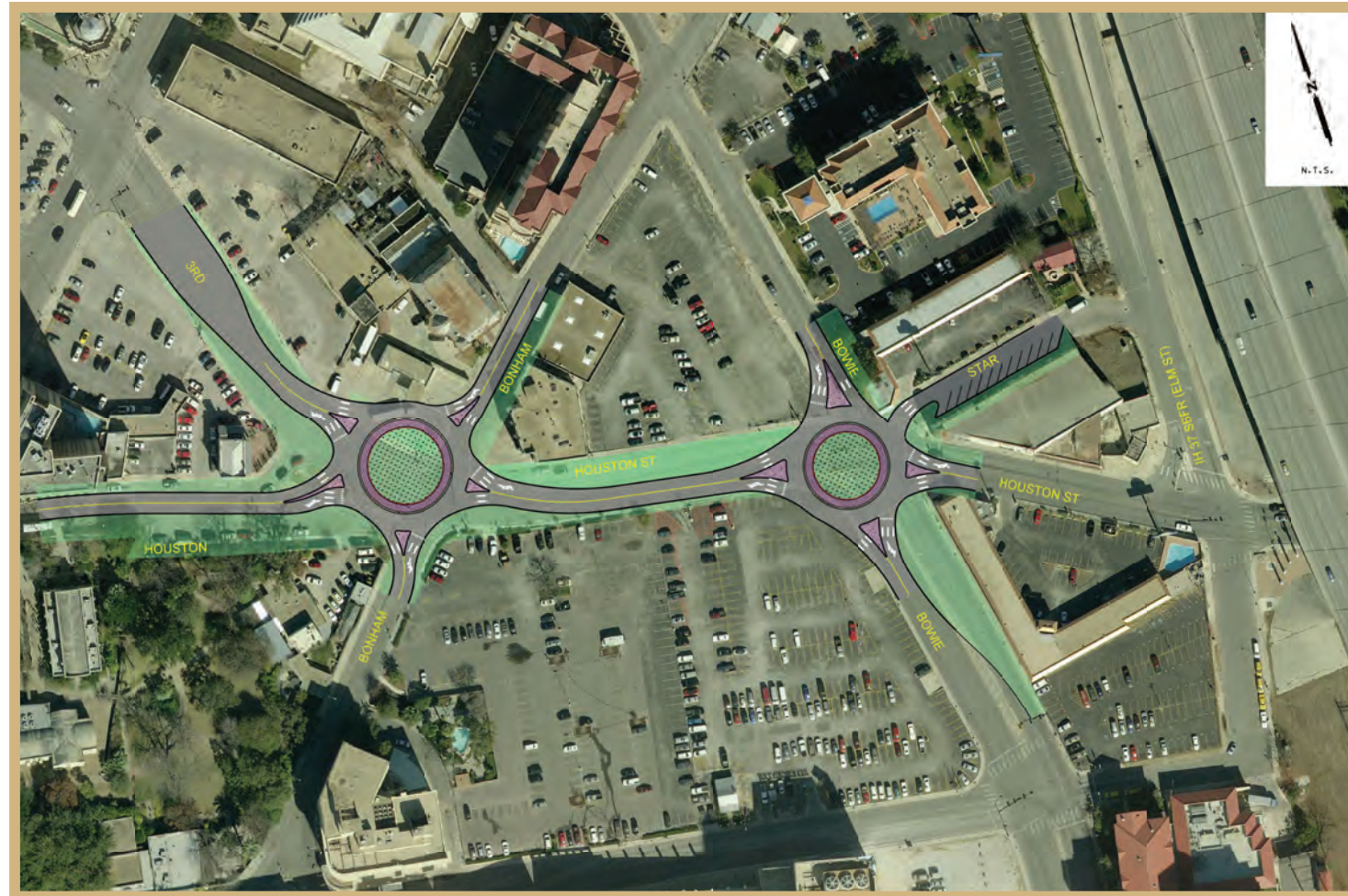


Figure 3-50: Proposed Houston Street Roundabouts



Figure 3-51: Proposed Houston/3rd/Bonham Streets Roundabout Concept

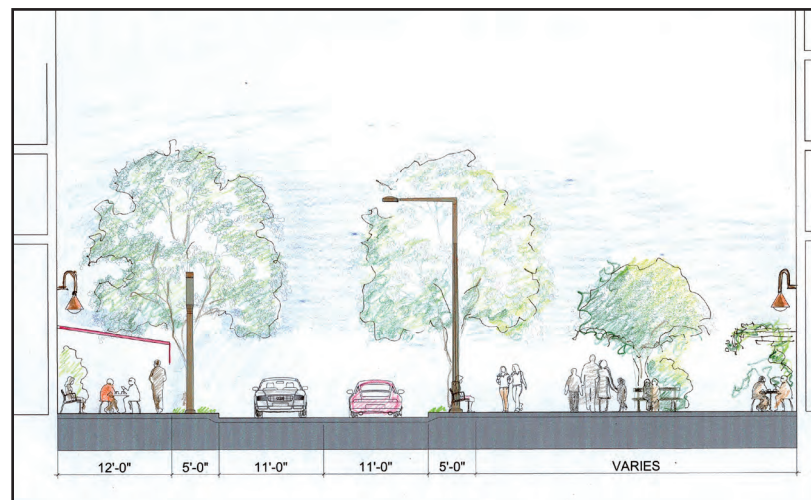
ROUNDBABOUTS

Roundabouts improve safety by eliminating angle accidents and serve as a traffic calming device by reducing speeds. Roundabouts provide opportunities to incorporate gateway features to announce to drivers that they are entering a special or unique place.

Both roundabouts will operate with improved levels of service in 2020.

LOS RESULTS (2020) - HOUSTON STREET ROUNDABOUT						
CROSS STREET	EXISTING		NO BUILD		BUILD	
	AM	PM	AM	PM	AM	PM
BONHAM	B	C	C	C	A	A
3RD ST.	A	A	A	A	A	A
BOWIE/STAR	C	C	C	C	A	A

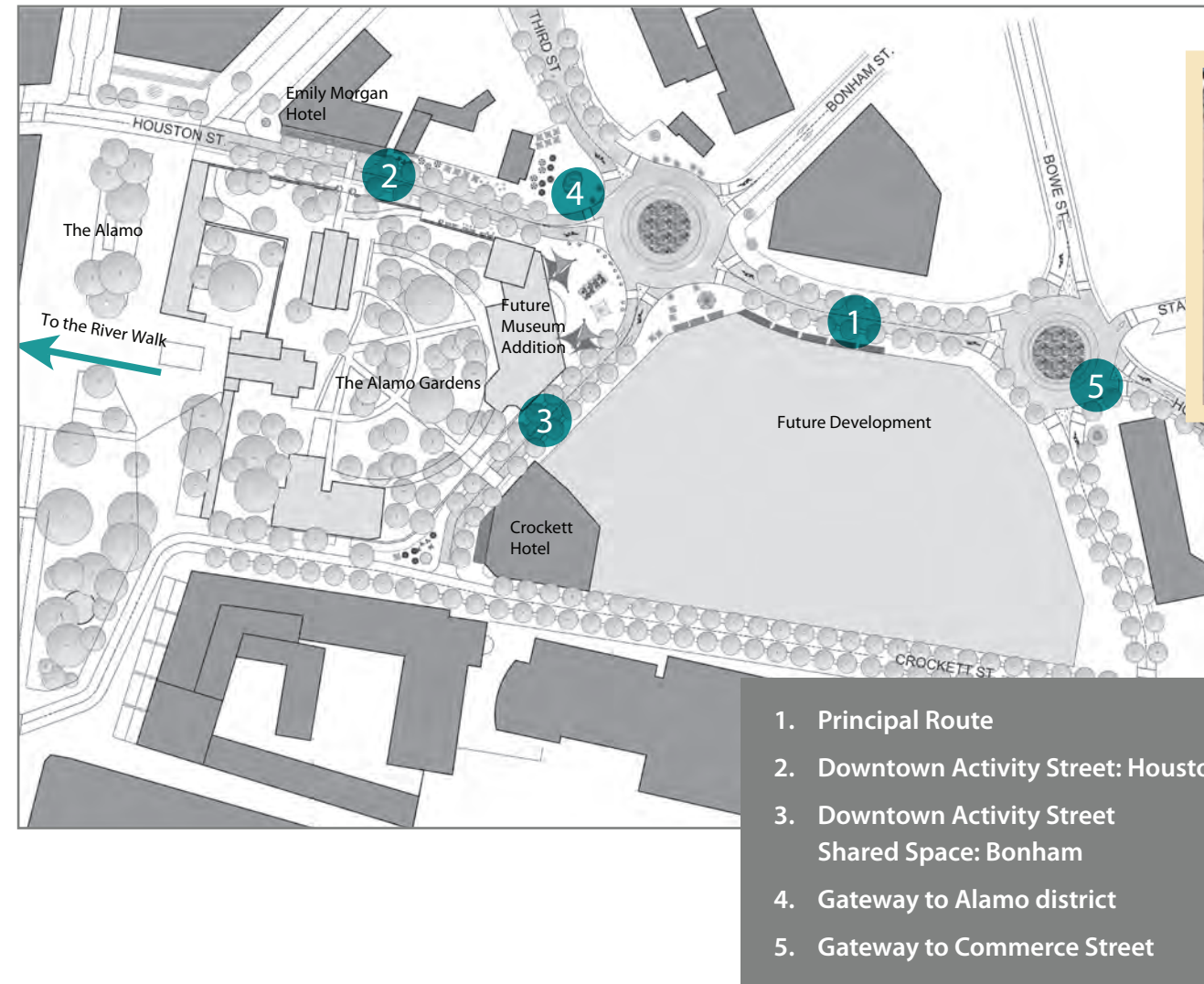
A special treatment to the Houston and 3rd Street intersection is a major opportunity to address one of the most awkward entrances to Downtown, in which a dilapidated and barren environment sits immediately adjacent to the city's most visited and revered attraction: The Alamo. Rather than only addressing a single street or intersection, the most substantial **Placemaking** opportunity lies in creating a vision for a district of streets that extend from Alamo Plaza to Bowie Street, which would catalyze more positive activity in the area around the Alamo, and would encourage new development in the adjacent parking lots to the east.



Proposed Cross Section - Houston St, Bowie St. to Bonham St.



Proposed Cross Section - Houston St, 3rd St. to Alamo



1. Principal Route
2. Downtown Activity Street: Houston
3. Downtown Activity Street Shared Space: Bonham
4. Gateway to Alamo district
5. Gateway to Commerce Street



Figure 3-52: Placemaking Concepts

The proposed placemaking concepts consist of the following:

1 – E. Houston from Bowie to Bonham can be an attractive two-lane street with street trees, seating and furniture, and pedestrian scale lighting. These improvements are aimed to create a more attractive place to encourage future mixed use development, with a walking infrastructure that will link it with the Alamo Plaza area.

2 – Houston Street between 3rd and N. Alamo
The character of this section of E. Houston Street should be a “shared street” that favors pedestrians and activities in the street, but allows slow-moving traffic. A shared street treatment essentially treats the whole street as if

it were a sidewalk and eliminates curbs and traffic signage, thereby forcing drivers to navigate at very slow speeds, negotiating their way slowly between other users. They have proven to be much safer and friendlier to people than traditional streets, when used in appropriate places. With decorative pavement, pedestrian scale lighting, and wall gardens, Houston Street can become a beautiful space for street dining in the evening, accompanied by live music and lighting. At the east end of this block is an opportunity for a gateway plaza attached to the Alamo area, with a water fountain or prominent sculpture just off the proposed roundabout. If the DRT

pursues the idea of constructing a new museum building here, this gateway treatment may also address an entrance, exit or plaza area related to the Alamo complex.

3 – Bonham between Houston and Crockett

This street should receive a similar shared space treatment. As one of the major access points to the Alamo, the River-Center and the River Walk, and a key location contributing to the interpretation of the Alamo history and the Camino Real, it deserves an ornamental/pedestrian scale pavement. Bonham should have wider sidewalks especially in front

of the Crockett Hotel and the garden entrance to the Alamo complex. The wall surrounding the complex could incorporate lush vine planting and areas for seating; the entrance to the Gardens could be enhanced with seating, shade and other amenities.

4 & 5 – Gateways

A water fountain or sculpture should mark the entrance to the Alamo area. Plantings or art installations can be placed in the roundabouts to communicate the historic character of the area.

St. Mary's , Navarro, and Nueva Intersection

The five-legged St. Mary's , Navarro, and Nueva intersection can serve as a gateway into Downtown from the south. The intersection is located near HemisFair Park, La Villita, and the River Walk. At the intersection, St. Mary's splits into the one-way couplet of St. Mary's and Navarro creating a five-legged intersection with Nueva. Signals at intersections with more than 4 legs can be inefficient and confusing for drivers. It is recommended this intersection be converted to a roundabout to provide an opportunity to incorporate a visual gateway in the design while simplifying and improving the configuration of the intersection. The roundabout will require acquisition of right-of-way at the intersection, **Figure 3-53**. If VIA's proposed streetcar is placed on Nueva, the roundabout could be designed to provide the required envelope for the operation of the streetcar through the center of the roundabout while traffic is stopped at signals or gates. The roundabout will operate at acceptable levels of service in 2020.

Designating a gateway between this part of downtown and the adjacent historic districts will also provide an opportunity to improve walkability in an area that is currently unfriendly to pedestrians. The roundabout should help rebrand this part of town with a higher level of comfort and an improved image, while at the same time providing better pedestrian and bike infrastructure. Street trees, landscaping and streetscaping improvements should be extended north along St. Mary's and Navarro to provide a connection to the River Walk, and extended west along Nueva to HemisFair Park and east to the River Walk. Thus, this improvement not only simplifies the intersection operation for drivers and alerts them that they are entering a unique area of Downtown, but it also provides visual and pedestrian-level connections to nearby "places."



Figure 3-53: St. Mary's /Navarro/Nueva Roundabout Concept



Existing Nueva Street at St. Mary's and Navaro looking north towards Downtown



Aerial view of intersection of Nueva at St. Mary's and Navarro

Alamo, Commerce, Losoya – “Torch” Intersection

The Alamo, Commerce, and Losoya intersection commonly referred to as the “Torch” intersection is located at the confluence of southbound Losoya, northbound Alamo, eastbound Commerce and westbound Market Street. The intersection also provides access to the River Walk and the Torch of Friendship sculpture is placed in a circular island at its center. South of the intersection, the one-way couplet of Losoya and Alamo merge to become a two-way street at the Market Street intersection. Left-turning traffic from Commerce is required to turn around the central island similar to a traffic circle. The southbound queue on Losoya from the signal at Market can extend into the Commerce intersection. Adding to the vehicular congestion are heavy pedestrian volumes with limited crossing locations. Over 150 pedestrians crossed either Losoya or Commerce during the morning peak hour and over 500 pedestrians crossed during the PM peak hour. The intersection is not pedestrian friendly, and pedestrians cannot cross Alamo and Losoya on the south side of Commerce due to the wide pavement width and non-traditional vehicle turning paths. In addition, there is a southbound bus contra-flow lane on Alamo north of Commerce,

Figure 3-54.



Figure 3-54: Existing Intersection Configuration



The following four Options were identified as potential improvements for the intersection:

Option 1 realigns Losoya south of Commerce and requires southbound traffic on Losoya to turn left onto Commerce, creating a short two-way segment on Commerce, and then right onto Alamo. The intersection operates at acceptable levels of service and this Option creates a larger plaza space on the west side of Losoya, but it does not significantly improve the pedestrian crossings. Option 1 also requires the Torch sculpture to be relocated. **Figure 3-55**

Option 2 realigns Losoya similarly to Option 1, but the direction of traffic on Losoya, north of Commerce is converted to one-way northbound; the southbound bus contra-flow lane on Alamo is opened to vehicular traffic and Crockett Street, north of Commerce, is converted to one-way eastbound flow between Losoya and Alamo. This option provides the greatest pedestrian plaza area, significantly improves the pedestrian crossings at the intersection, and reduces conflicts with pedestrians without requiring the Torch sculpture to be moved. It also eliminates the need for a traffic signal at Commerce and Losoya. However, the remaining intersections will operate at poor vehicular levels of service D and E in year 2020. LOS D, E, and F are considered typical in downtown settings. **Figure 3-56**

Option 3 prohibits left-turns from Commerce onto Losoya by closing this lane around the circle. Left-turning traffic will be re-routed to turn at Presa. This option improves the vehicular level of service at the intersections and provides pedestrian crossings on the south side of Commerce at Alamo and Losoya. This option does not require the Torch sculpture to be moved. **Figure 3-57**

Option 4 reverses the direction of traffic on Losoya and Alamo which improves the vehicular level of service but does not provide any benefit to pedestrians. This option does not require the Torch sculpture to be moved. **Figure 3-58**

All options would need to be modified if VIA's streetcar alignment includes Losoya and Alamo. Option 2 allows the streetcar alignment to travel through the expanded pedestrian plaza area.

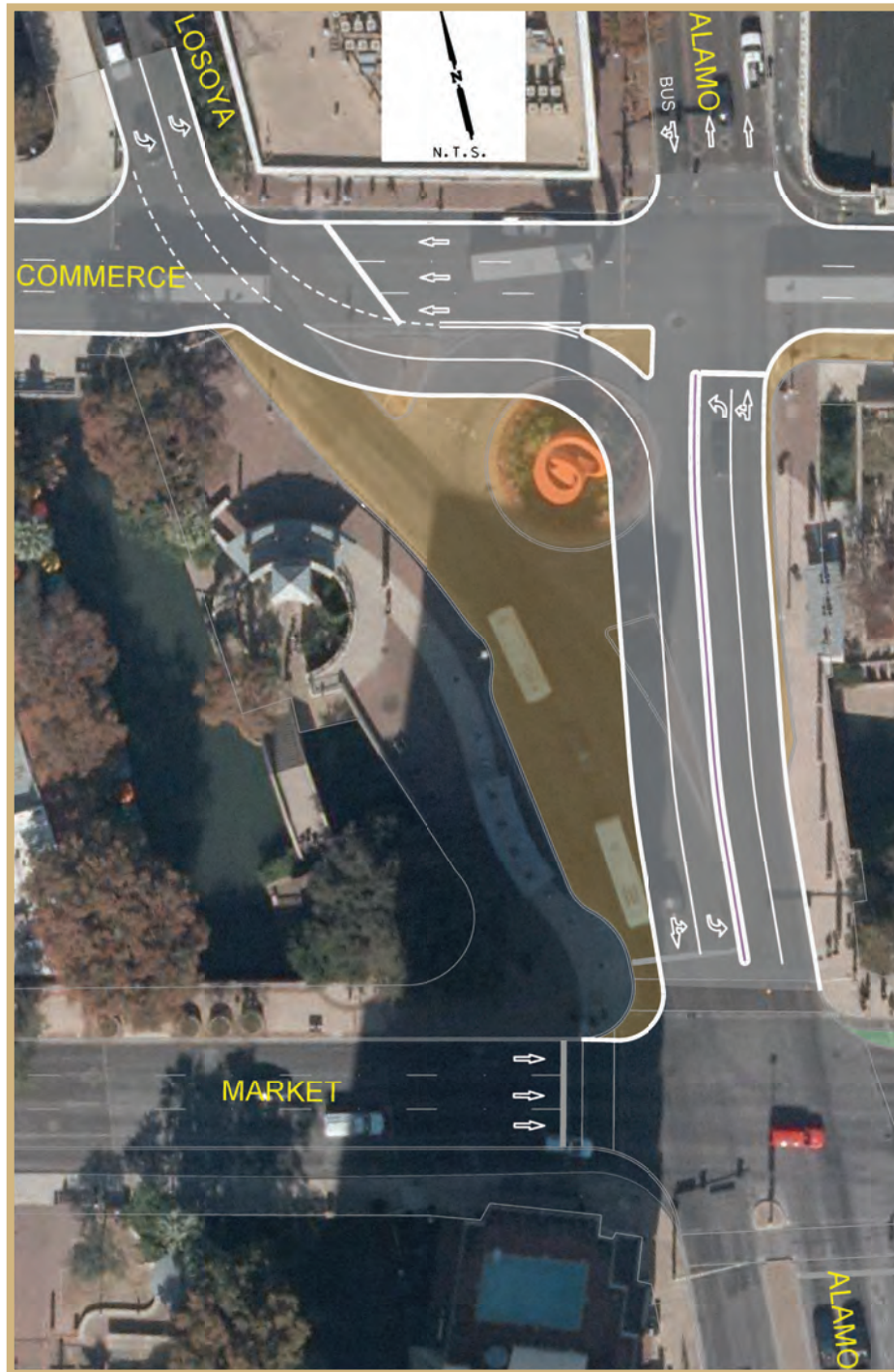


Figure 3-55: Option 1 Improvements

OPTION 1 TORCH INTERSECTION				
CROSS STREET	NO BUILD		BUILD	
	AM	PM	AM	PM
COMMERCE / ALAMO	B	B	C	C
COMMERCE / LOSOYA	A	B	B	C
MARKET / ALAMO	C	C	C	C
COMMERCE / PRESA	A	A	C	B
MARKET / PRESA	A	A	B	B



Figure 3-56: Option 2 Improvements

OPTION 2 REVERSE LOSOYA				
CROSS STREET	NO BUILD		BUILD	
	AM	PM	AM	PM
COMMERCE / ALAMO	B	B	D	D
COMMERCE / LOSOYA	A	B	UNSIG	UNSIG
MARKET / ALAMO	C	C	D	E

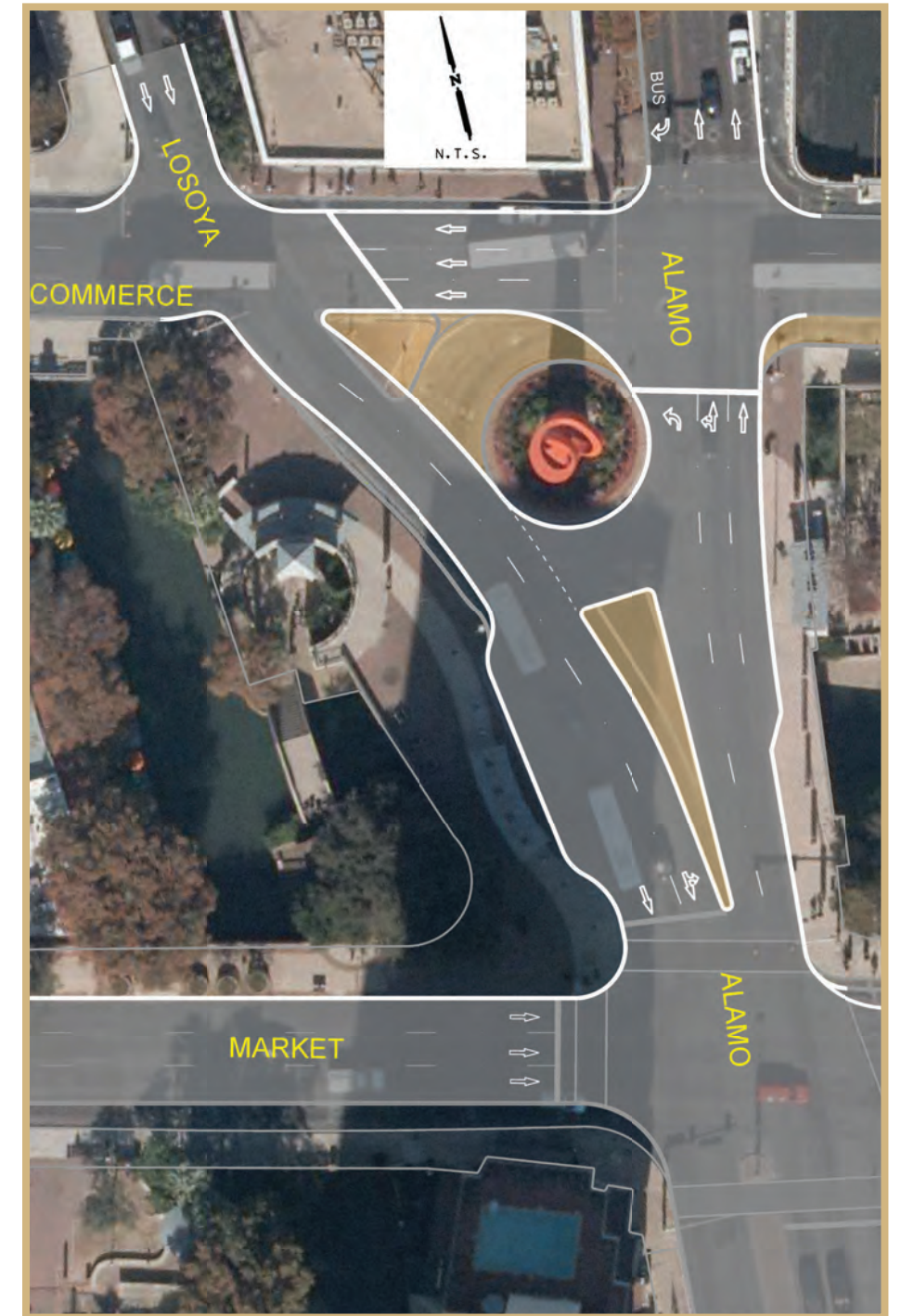


Figure 3-57: Option 3 Improvements

OPTION 3 RESTRICT LEFTS AT LOSOYA				
CROSS STREET	NO BUILD		BUILD	
	AM	PM	AM	PM
COMMERCE / ALAMO	B	B	B	C
COMMERCE / LOSOYA	A	B	B	B
MARKET / ALAMO	C	C	C	C
COMMERCE / PRESA	A	A	A	A
MARKET / PRESA	A	A	B	B

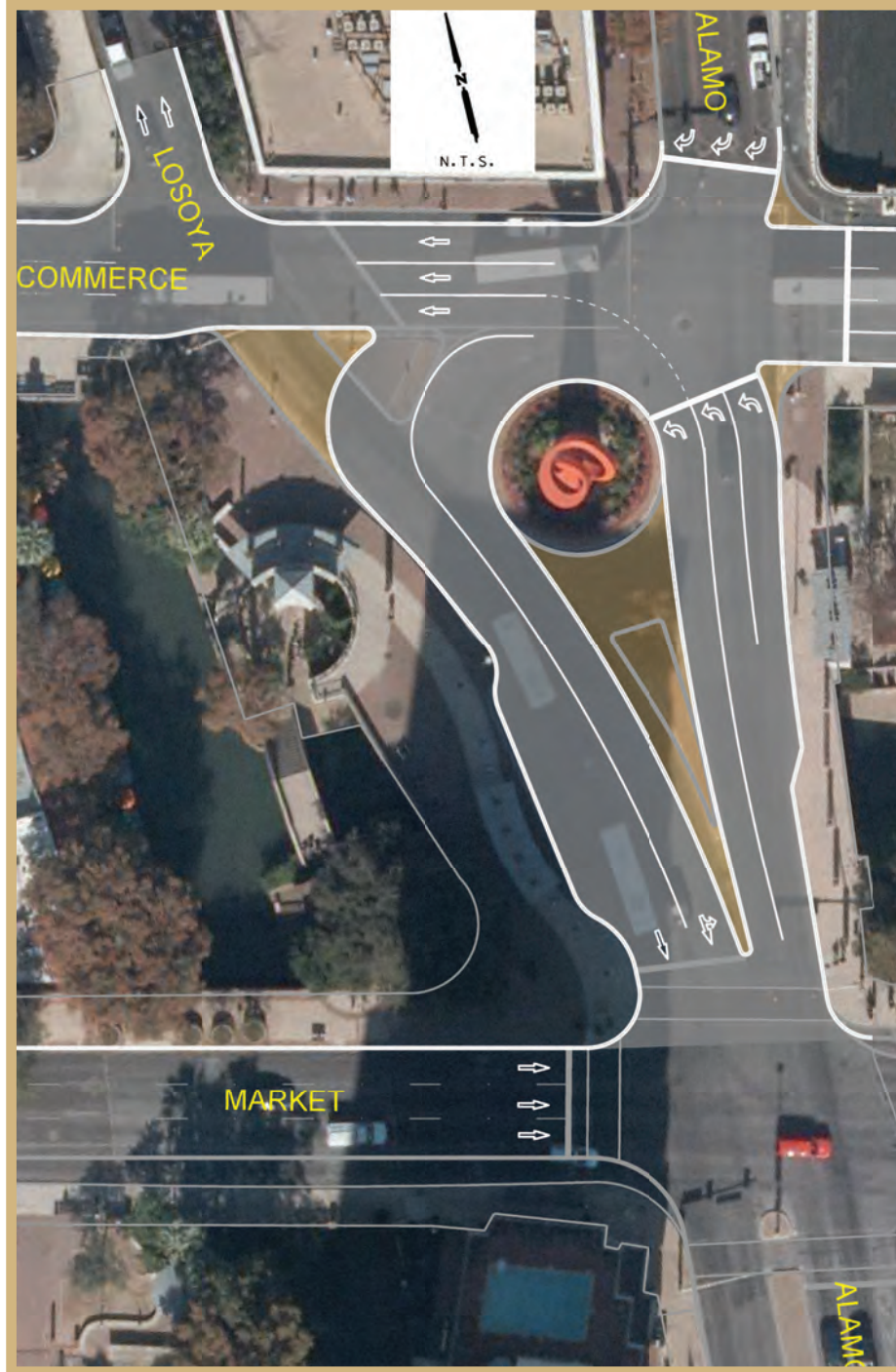
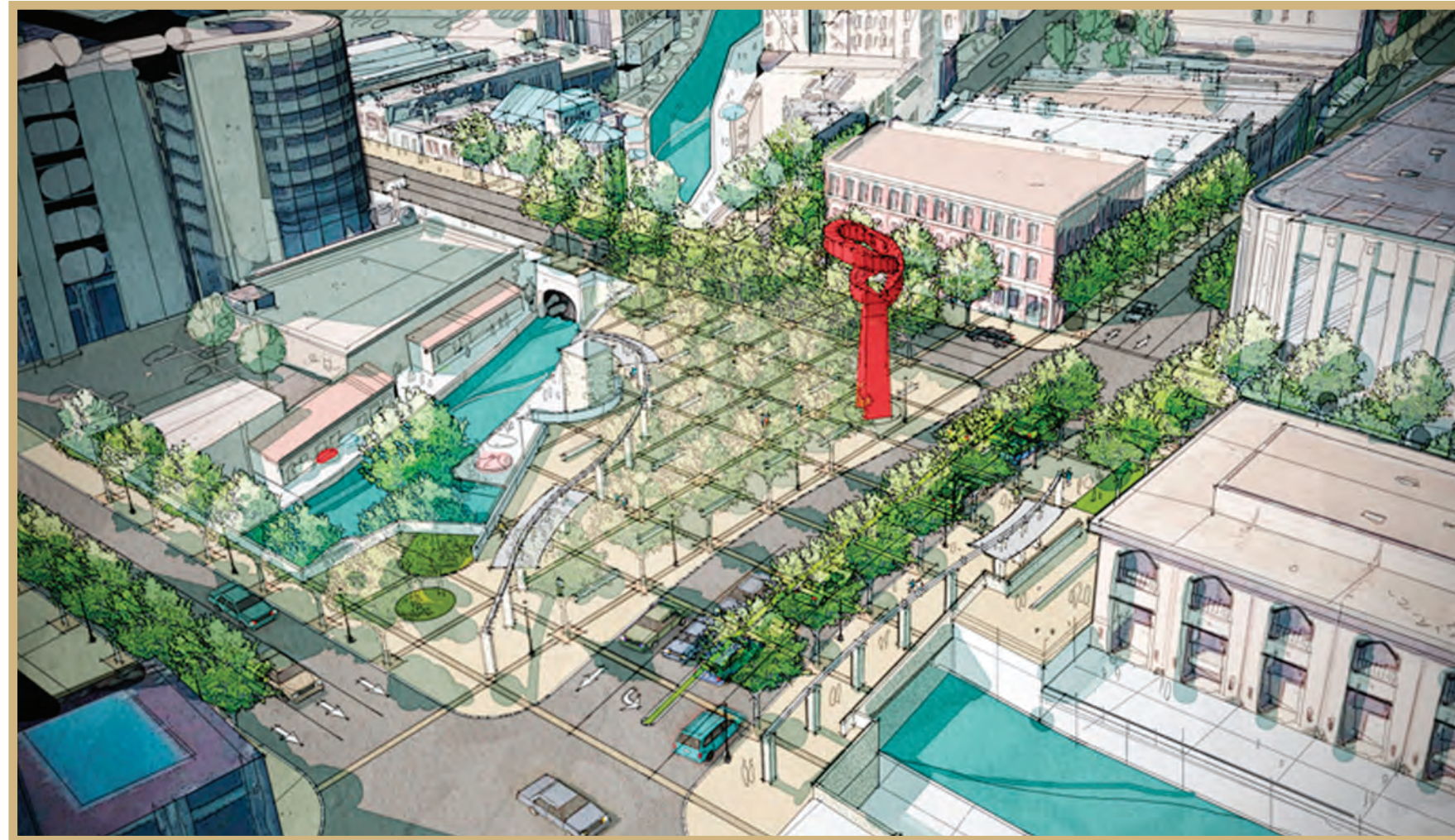


Figure 3-58: Option 4 Improvements

OPTION 4 REVERSE ALAMO AND LOSOYA				
	NO BUILD		BUILD	
COMMERCE / ALAMO	B	B	C	C
COMMERCE / LOSOYA	A	B	UNSIG	UNSIG
MARKET / ALAMO	C	C	C	C

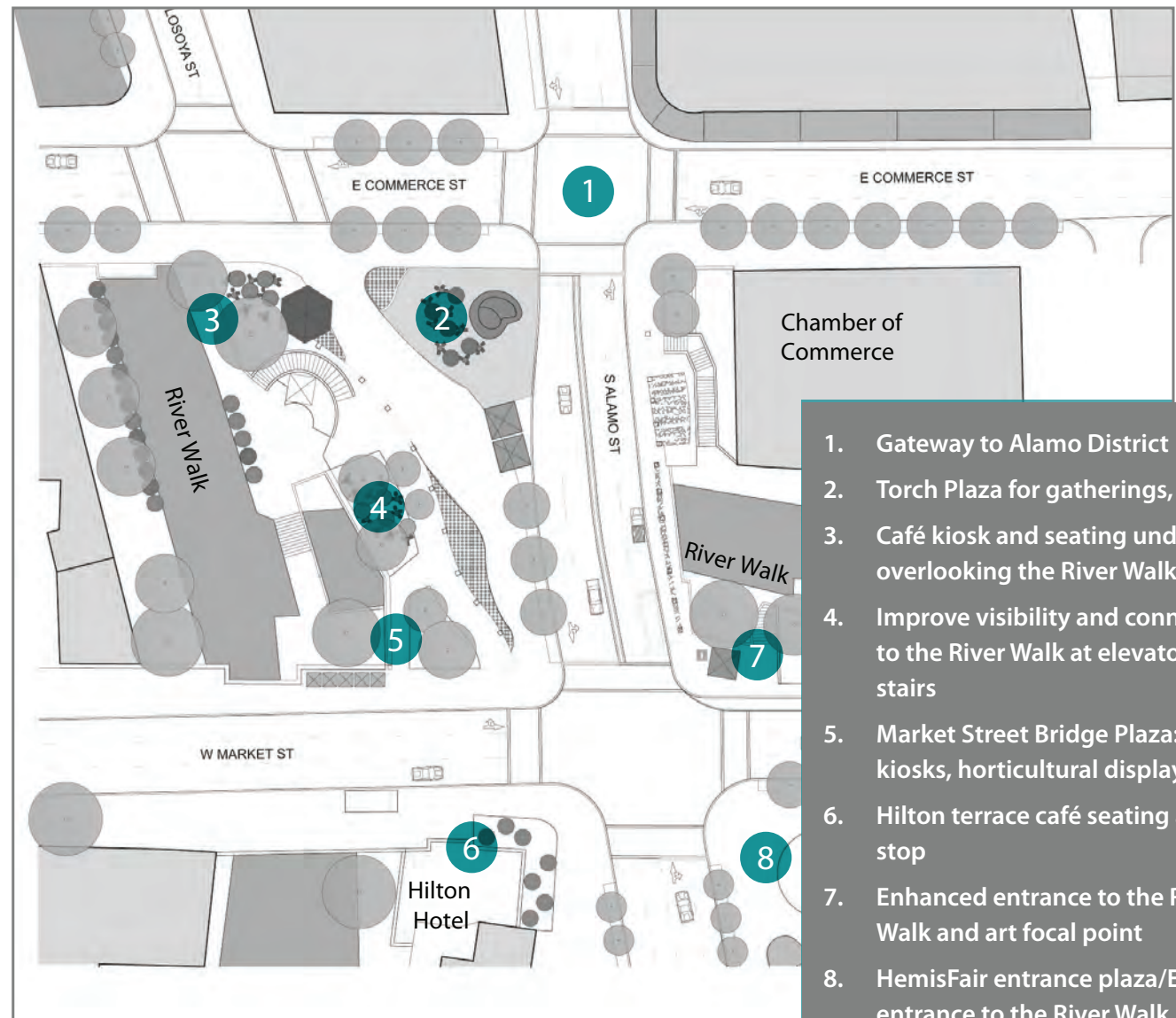


Alamo, Commerce, and Losoya – “Torch” Intersection: Option 2 Concept

The Torch intersection represents many layers of complexity, and the fact that streets converge and intersect here is an indication of how central this place is, and always has been to San Antonio. It was the crossroads of the original Caminos Reales that led from Mexico to the Mission San Antonio de Valero and down Commerce to the Plaza de Armas. Today, it remains the crossroads of three of the streets most central to both local visitors moving between historic sites, and to local and through-traffic: Commerce Street, Market Street, and Alamo Street/Losoya Street. Solving some of the traffic problems here presents a rare opportunity to also recapture the crossroads as a center for interpreting local history and orienting visitors finding their way through Downtown. The added benefit of increasing the pedestrian plaza area, and providing access to the Torch sculpture makes Option 2 attractive for providing amenities.

The following are concepts for allowing for some methods to improve orientation and interpretation:

- Establish an information kiosk at the intersection.
- Provide wayfinding signage to key Downtown attractions along with historic maps of the City.
- Interpretive signage at and around the Torch should address the most significant aspects of the site through history, including the long relationship between Mexico and Texas, the Camino Real system, the Battle of the Alamo, etc.
- Open up strategic views to HemisFair, up Alamo Street, and down to the River Walk:
 - ✓ Improve visibility and connectivity to the River Walk with new system of terraces down, creating a signature entrance, enhanced with signage, art, lighting;
 - ✓ Improve the entrance to the River Walk at the Chamber of Commerce, lower the walls, create seating areas, co-locate art, interpretive signage of historic events, wayfinding, and lighting.
 - ✓ Provide strong visual connections at the HemisFair Park entrance Plaza: incorporate art at the corner; provide Torch Plaza info and amenities to serve park users.
 - ✓ Create a visible but tasteful gateway treatment to the Alamo District at Alamo Street, north of Commerce.
 - ✓ Improve pedestrian crossing safety throughout.



1. Gateway to Alamo District
2. Torch Plaza for gatherings, events
3. Café kiosk and seating under trees overlooking the River Walk
4. Improve visibility and connectivity to the River Walk at elevators and stairs
5. Market Street Bridge Plaza: vending kiosks, horticultural displays
6. Hilton terrace café seating and bus stop
7. Enhanced entrance to the River Walk and art focal point
8. HemisFair entrance plaza/Existing entrance to the River Walk

Figure 3-59: Placemaking Concepts – Torch Intersection

The following placemaking concepts are offered to enhance area attractions:

- Provide a café kiosk and seating under trees overlooking the River Walk below. The kiosk could attract people from the River Walk, HemisFair and the Alamo. Enhance the recommended terraces down to the River Walk with seating, lush planting, and possibly food kiosks.
- Widen sidewalks on Commerce and provide streetscape amenities; open the RiverCenter Mall windows and entryways to the Commerce Street sidewalks.
- Create a Torch Plaza for gatherings and events; a meeting spot with comfortable seating under trees and a setting for wayfinding and interpretation. Provide movable seating over permeable pavement (cooler than concrete).
- The Market Street Bridge should be a sidewalk level place that connects the River Walk level to the street level experience. Add vending kiosks and horticultural displays and seating on the bridge for people to watch below. This could be a location for a market.
- The Hilton’s back terrace on Market could have café seating and street vendors, creating a busy corner at the River Walk entrance by the bus stop.

Example images from other Downtowns



San Pedro, Main, Navarro, and Soledad Intersection

The intersection of San Pedro, Main, Navarro, and Soledad is a gateway intersection into Downtown. The intersection is located in north Downtown, next to the Central Library. The existing configuration contains confusing channelization, restricted turning movements, offset travel paths across the intersection and a bus contra-flow lane creating a confusing intersection that can greatly impede wayfinding in northern Downtown,

Figure 3-60.

Four options were developed to improve the intersection. Three options are conventional intersections which modify the channelization, move the approaches closer to the center of the intersection and provide better intersection alignments. The fourth option is a roundabout which will require acquisition of right-of-way.



Figure 3-60: Existing Intersection Configuration



Figure 3-61: Option 1 Improvements

Option 1 consolidates the northbound lanes on Navarro; reduces the southbound lanes on the south leg of Main; straightens the alignment of southbound Main through the intersection; allows Camden traffic to turn right on Main or on San Pedro; removes the dual right turn from San Pedro onto Main; removes some of the channelized islands, and creates green space.



Figure 3-62: Option 2 Improvements

Option 2 consolidates the northbound lanes on Navarro; reduces the southbound lanes on the south leg of Main; straightens the alignment of southbound Main through the intersection; restricts Camden traffic to a right-turn only onto Main; allows Navarro traffic to turn onto Main without being signalized; removes the dual right turn from San Pedro onto Main; removes some of the channelized islands and creates green space.



Figure 3-63: Option 3 Improvements

Option 3 consolidates the northbound lanes on Navarro; reduces the southbound lanes on the south leg of Main; straightens the alignment of southbound Main through the intersection; shifts Camden Road south of the intersection allowing Camden traffic to turn right onto Main or San Pedro which may require right-of-way acquisition; removes the dual right turn from San Pedro onto Main; removes some of the channelized islands and creates green space.

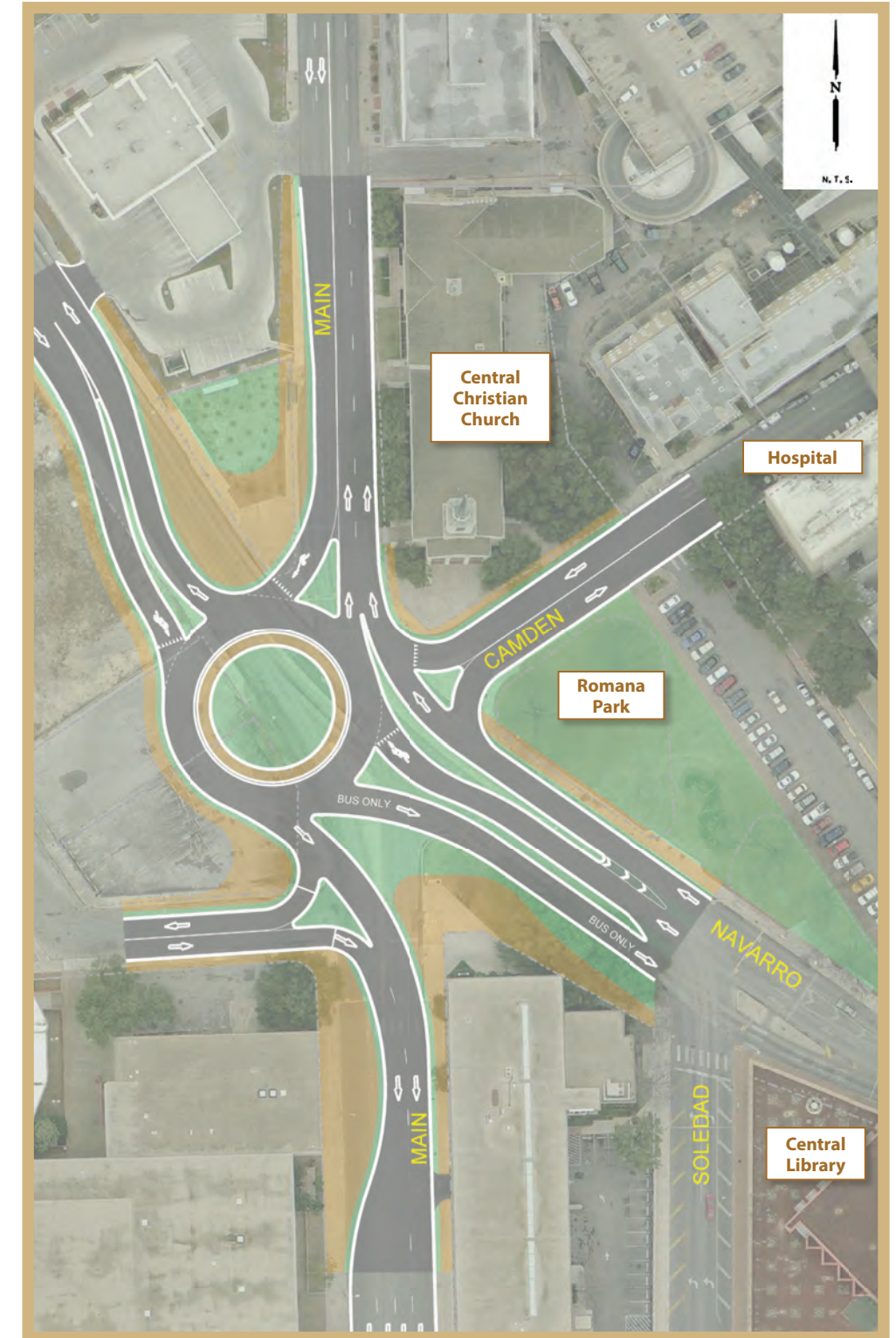


Figure 3-64: Option 4 Improvements

Option 4 consists of a roundabout which allows more movements; improves navigation; removes angle accidents; provides gateway opportunities in addition to creating green space. This option requires right-of-way acquisition. **Figures 3-64** and **3-65**



Figure 3-65: Roundabout Concept – Option 4

All four options result in additional green space around the intersection creating viable locations for **placemaking**. Concepts for placemaking were developed showing how the area can be enhanced and incorporated with the church, park and library, **Figures 3-66 & 3-67, next page.**

The area between Central Christian Church on North Main and the Southwest School of Art on the River Walk has a unique character derived from open spaces framed by buildings of architectural significance, terminating views, and, closer to the River Walk, a few charming village-scaled streets with lush tree canopy and historic stone walls and bridges. Improvements to the public realm should address these special opportunities and blend them together into a charming and walkable cultural district. All streets should become as green as Augusta or Navarro along the School of Art; narrower streets and wider sidewalks will create a pleasant strolling environment that connects a sequence of different public spaces. Concepts for **placemaking** are discussed below:

- Romana Park is a featureless space that can become a very attractive garden-type park with seating, an outdoor reading room, and a small play area that relate to the library and its patrons. It can also be used to host library events.
- In front of Central Christian Church, paved space and an existing traffic island can be combined to create a “Church Square” available for church events, weddings, and other church activities.
- Romana Plaza, the space at Main & Navarro in front of the American Payroll Association building, should be improved with shaded seating areas, and directional signage.
- Across North Main from the church, the available green space could be transformed into another pocket park in front of Capital One Bank, with opportunities for art displays at the intersection, gardens, and a seating area on the north end, away from traffic.

The north and west library edges need a dramatic upgrade to create a more appealing, interesting, and comfortable environment to walk along. The following improvements are suggested:

- Widen sidewalks on Soledad along the Library, with a bus shelter and street trees or canopies to provide shade; consider an art treatment for blank walls
- Enhance the main entrance with shade, trees and seating, creating a pleasant entry to the building.
- Look for other spaces to provide small pocket gardens along the sidewalk and at the entrance, with seating, shade, and signage.

San Pedro, Main, Navarro, and Soledad Intersection

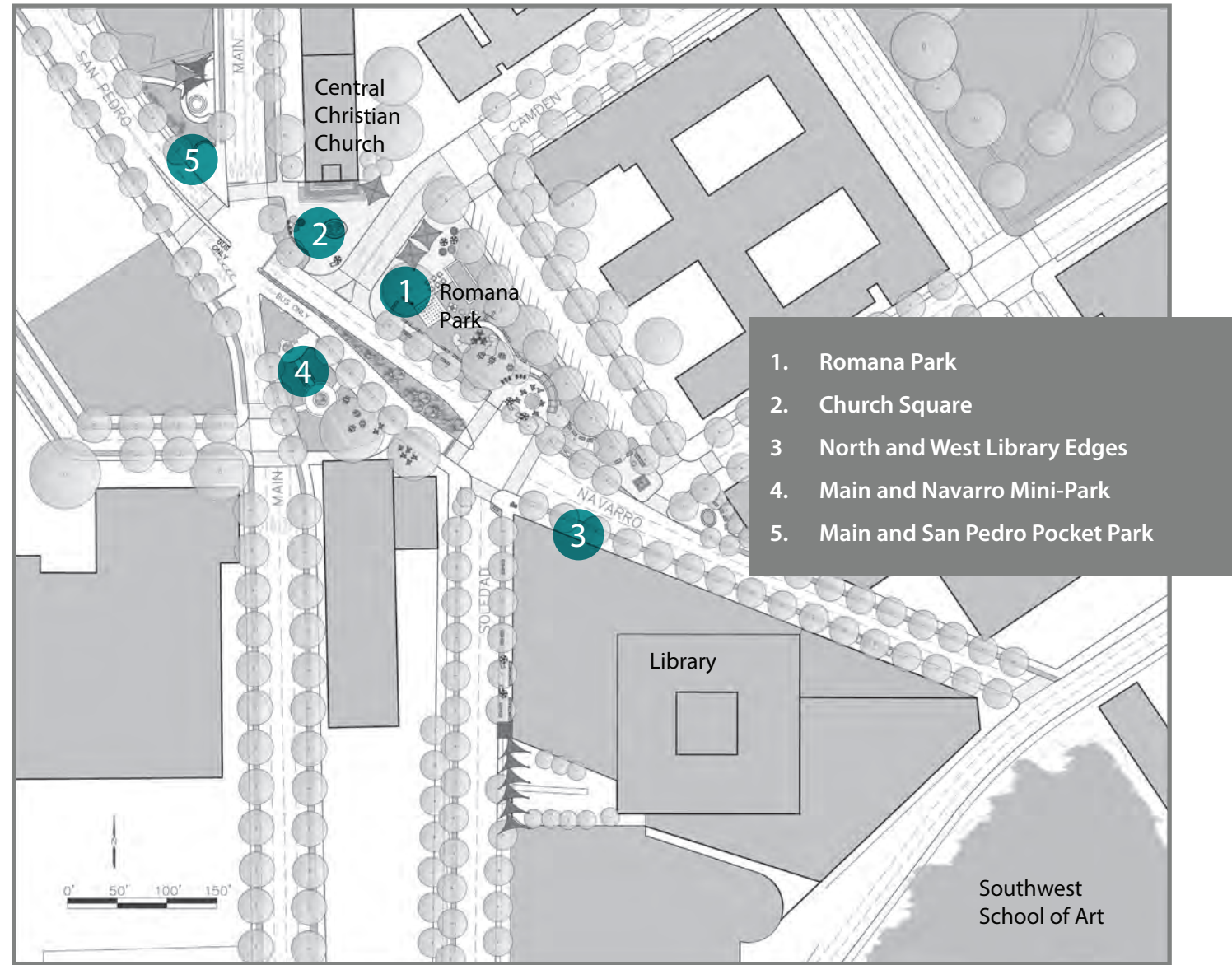


Figure 3-66: Placemaking Concepts

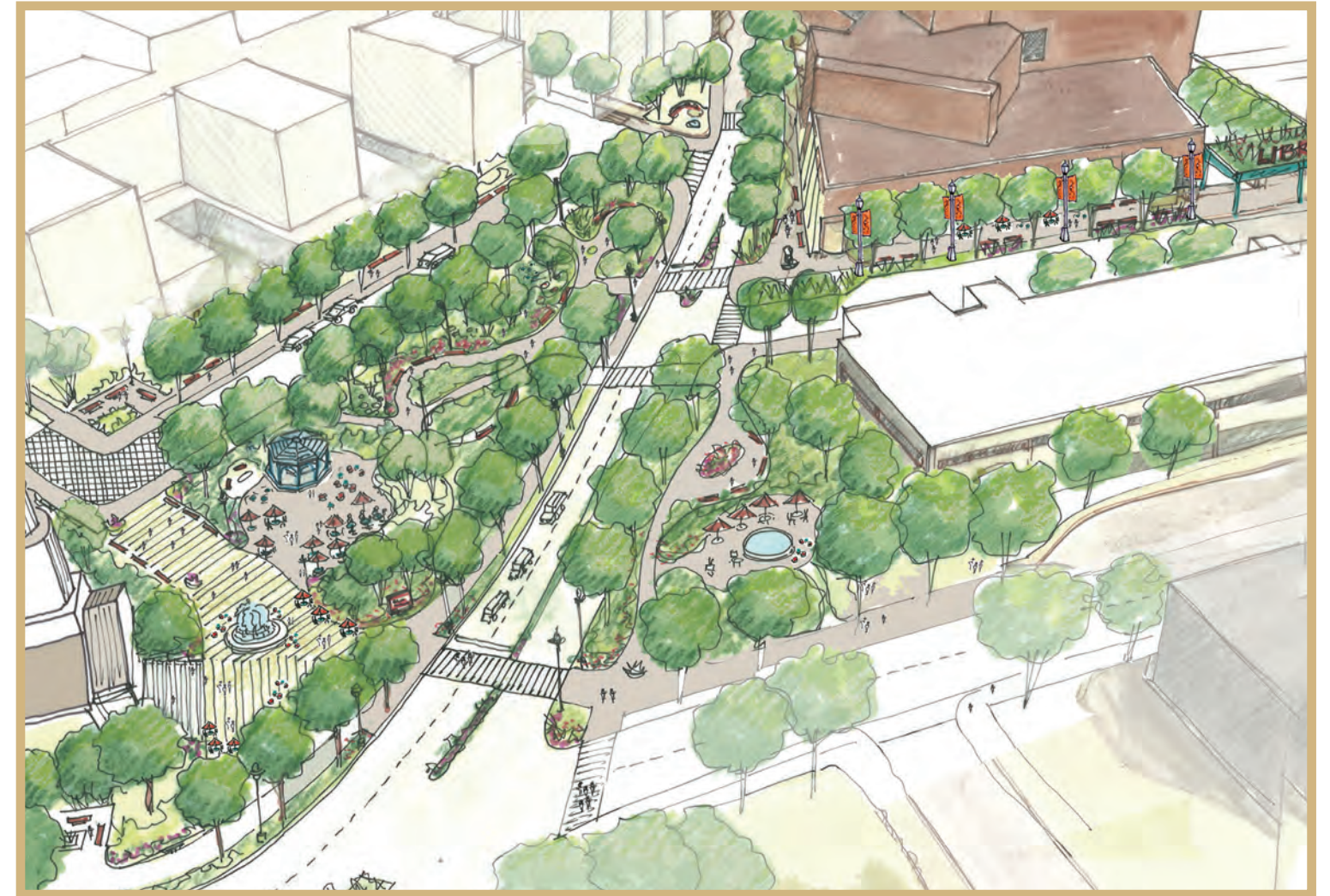


Figure 3-67: Rendering of Placemaking Concepts



Placemaking Examples

Jones, Camden, St. Mary's Intersection

The intersection of Jones, St. Mary's, and Camden is another five-legged intersection which serves as an entry point into Downtown and the River North area from the north. The intersection is signalized. Buildings located very close to the corner obstruct sight lines. Landscaping, art or other streetscaping elements can identify this intersection as a gateway to alert drivers they have entered Downtown. St. Mary's serves as a direct route into Downtown, however, the southbound approach of St. Mary's is aligned with Jones Avenue, so vehicles must turn to the right in order to continue on St. Mary's. The five-legged geometry combined with the change in orientation of St. Mary's adds to confusion for drivers navigating there way into and out of Downtown.

A roundabout is recommended at this location to improve wayfinding. The roundabout will require acquisition of right-of-way (Figure 3-68), and will operate at LOS A during both peak hours in the future in year 2020.



Jones, Camden, St. Mary's intersection looking East.



Jones, Camden, St. Mary's intersection looking Northwest.



Figure 3-68: Roundabout Concept for Intersection of Jones, Camden and St. Mary's

CORRIDOR BRANDING AND ROUTE CLARITY IMPROVEMENTS

Martin/3rd/Pecan/Houston – East-West Route—IH 37 to Frio

Martin and Pecan Streets make up the primary east-west connector in the north section of Downtown. West of Camaron, Martin is a two-way street. East of Camaron, Martin becomes a one-way westbound street and part of a one-way couplet with Pecan. Pecan ends at Broadway, and east of Broadway, Martin is again a two-way street and changes its name to 3rd Street. East of Bonham, the street name changes to Houston Street. Where it is named 3rd Street, the road also changes alignment and is temporarily oriented in the northwest-southeast direction.

Despite the name and alignment changes, Martin Street provides a continuous westbound route from Interstate 37 to Interstate 10. For simplicity, this overall corridor will be referred to as Martin Street. Eastbound traffic traveling from Interstate 10 is diverted onto Pecan Street where Martin becomes one-way. However, when Pecan ends at Broadway, eastbound traffic is not merged back onto 3rd Street, but instead must turn left onto Broadway and then turn right onto 3rd Street to continue east to Interstate 37.

Further complicating wayfinding in the area, the street name Houston continues being used west of Bonham on another east-west street. Houston Street east of Bonham is part of the Martin Street corridor and drivers traveling along it in the westbound direction have no direct access to Houston Street west of Bonham since this portion of the street is one-way eastbound.

To improve wayfinding and reduce driver confusion, it is recommended that the Martin Street corridor be branded to improve the continuity between the different street names and alignments. While renaming the streets to a common name is not recommended because it would require businesses to change their address, branding the street by incorporating characteristic streetscaping features or signing can help to unify the corridor and reassure drivers they are traveling along the correct route,

Figures 3-69 and 3-70. Some examples of branding with a uniform name are Fashion Avenue in New York City or the Magnificent Mile in Chicago. The Martin Street corridor is designated as a Principal Route on the street typology map.

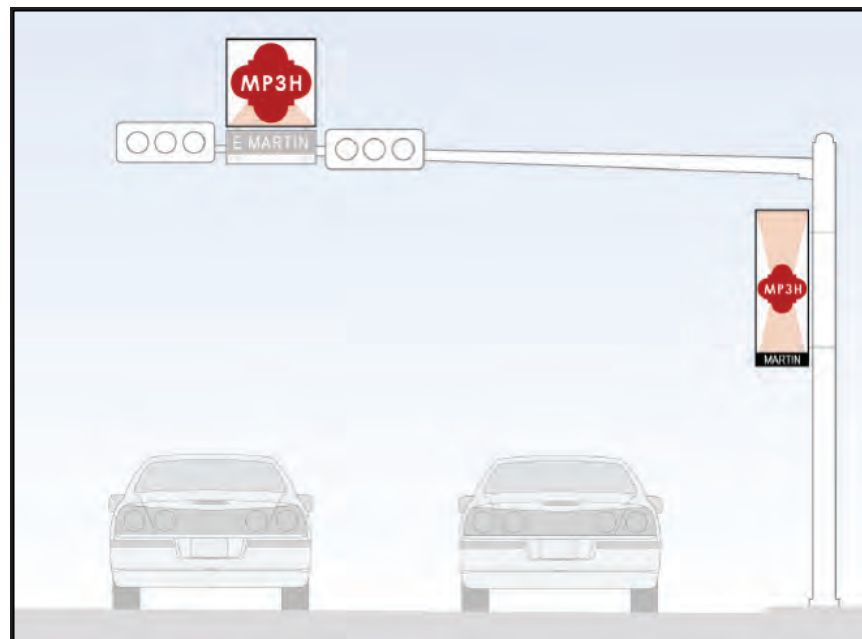


Figure 3-70: Wayfinding/Branding Example

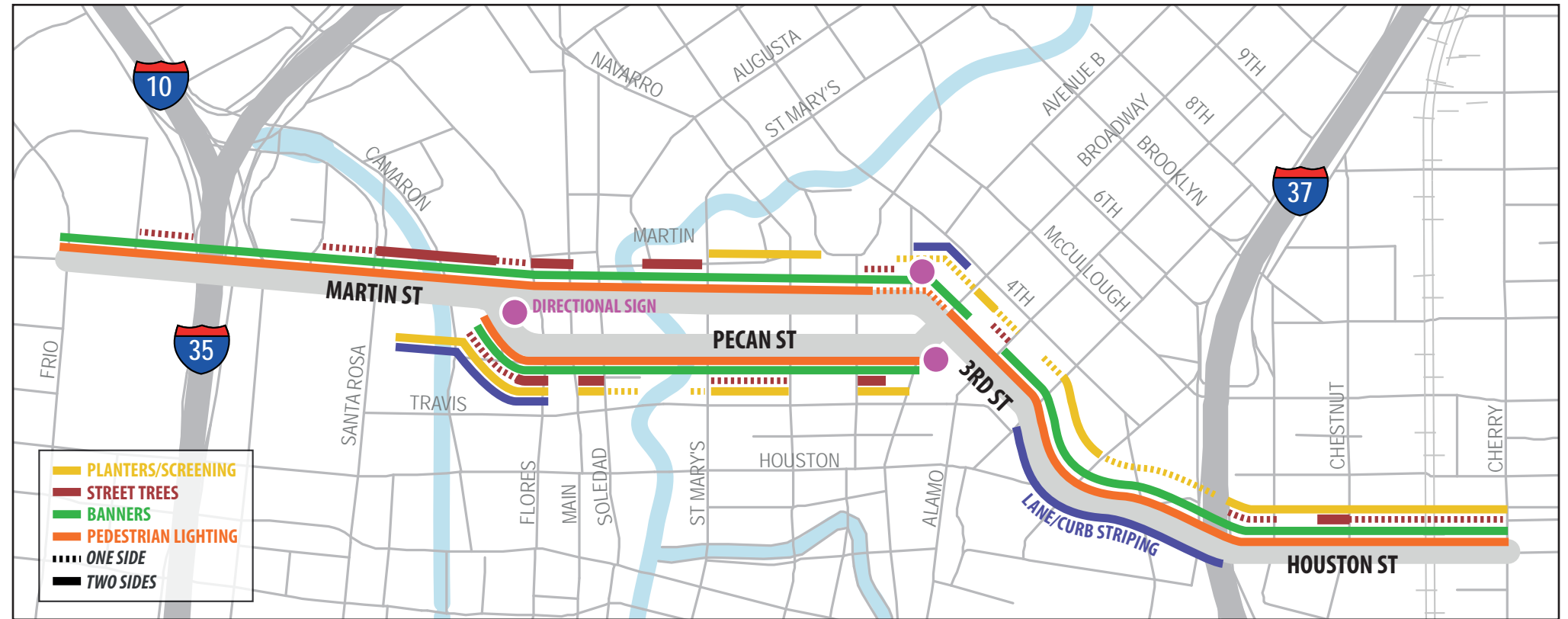


Figure 3-69: Schematic Location of Corridor Improvements

Realignment of Pecan Street-Cameron to Flores

Pecan Street is a one-way eastbound street, which serves as part of a one-way couplet with Martin Street. Pecan Street diverges from Martin Street with a sharp, ninety-degree turn. To create a more comfortable and intuitive driving experience, Pecan Street can be realigned by shifting the diverging point further west and constructing a curve with a much wider radius to provide a more gradual transition. The realignment of Pecan Street would require right-of-way acquisition from the parcel containing a parking lot located at the corner of Martin Street and Camaron Street.



Realignment of Pecan Street at Martin Street

ADDITIONAL IMPROVEMENTS SUPPORTING ECONOMIC DEVELOPMENT

Laredo/Dolorosa to Houston

Laredo is a north-south street on the west side of downtown and runs from Nueva Street to Houston Street. South of Dolorosa, Laredo is a one-way northbound private street. Between Dolorosa and Commerce, Laredo is a one-lane, one-way southbound street with on-street parking and curb extensions. Laredo is a two-lane, two-way street north of Commerce, serving the Vistana mixed-use development and parking garage. Laredo is identified as a Downtown Activity street on the street typology map.

It is recommended Laredo be converted from a one-way street to a two-way street between Dolorosa and Commerce. This will require the removal of six on-street parking spaces and curb extensions along this block on Laredo. The conversion to two-way will improve connectivity and wayfinding in the area. Visitors to El Mercado arriving on Dolorosa and wishing to park at the garage on Laredo at Commerce must now turn left onto Santa Rosa, right onto Houston, and then turn right onto Laredo. Converting Laredo to two-way will allow visitors to turn directly onto Laredo from Dolorosa. The following benefits and disadvantages of converting Laredo to two-way operation were identified:

CONVERTING LAREDO TO TWO-WAY TRAFFIC

BENEFITS

- Provides better access to Vistana/Market Square garage from IH-35. Currently, EB traffic doesn't have a direct way of accessing the parking.
- Provides better overall connectivity between Dolorosa and Houston, which can greatly help drivers find their way around, improving circulation.
- Easier to navigate for people who are new to the area.
- Improves access to/from the surface parking lots located on both sides of Laredo.

DISADVANTAGES

- Requires removal of existing bulbouts and six on-street parking spaces on Laredo between Commerce and Market/Dolorosa.
- Requires modifications to the signal, signing and striping at the intersection of Laredo and Commerce.
- May be inviting for some people to attempt to go northbound from the detention center's parking lot, in spite of the offset.

River Walk Access

River to street "gateway" connections in the Downtown Core can connect activity on the River Walk to activate the street level. The River Walk has been the backbone of Downtown's decades of success. Creating visible, recognizable and safe connections from the street level to the River at key intersections will encourage pedestrian movement at both levels. These improvements will create a better environment for retailers at street level, which will lead to further street level vibrancy. Throughout Downtown, **placemaking** improvements should be implemented on the sidewalk level at entrances to the River Walk. Doing so will reinforce wayfinding and encourage more people to enjoy both the river level and the street level. Examples of placemaking improvements included in this report are:

- A new Torch Plaza with terraces down to the River Walk with seating, lush planting, and possibly food kiosks. This would draw people up to the sidewalk attractions at the Torch, The Alamo, and HemisFair, and create a more obvious River Walk entrance to visitors walking at street level;
- The Market Street Bridge should be a sidewalk level place that connects the River Walk level to the street level experience. Add vending kiosks and horticultural displays, and seating on the bridge for people to watch below. This could be a location for a market.
- The Hilton's back terrace on Market could have café seating and street vendors, creating a busy corner at the River Walk entrance by the bus stop.

Some other key placemaking locations include:

- Bridges, such as at E. Houston Street, Villita Street, and N. St. Mary's at St. Mary's Church, and especially Market and Commerce Streets where they cross both near Main Plaza and at the Torch.
- Alamo Plaza at the Paseo de Alamo;
- HemisFair, at the terminus of the River Walk through the Convention Center.

Key connection points for near-term investment, where placemaking should be considered at street level, include:

- **La Villita:** A new connection from the River Walk to La Villita should be part of an overall strategy connecting HemisFair, La Villita, Presa Street, and the Briscoe Museum;
- **Market/Alamo:** As part of the redevelopment of the Convention Center site and HemisFair Park, an improvement in the River Walk access point at this intersection will strengthen the connection between the River and the new development's future uses;
- **César Chávez:** Improve street level access along this corridor which serves as a gateway to Southtown.



River Walk Access Points

Gateways

Longer-term gateways that should be prioritized for investment include:

- HemisFair Park's northwest corner at Market and Alamo Streets;
- Nueva Street;
- St. Mary's Street;
- Travis Street;
- Josephine Street;
- Jones Street;
- César Chávez Boulevard;
- South Alamo Street;
- Crofton Street/Blue Star; and
- Lone Star Boulevard.

Freeway Underpasses

Incorporate improvements that build on the wayfinding system that exists Downtown and that reinforce critical automobile and pedestrian gateways by enhancing key freeway underpasses with wayfinding, lighting, and landscaping along parking lot and sidewalk edges. Potential priority underpasses include the Houston Street exit ramp, Market Street on the west side of Downtown, the Brooklyn Street bridge, Flores Street at Interstate 35 and Martin Street. These connections are likely to be strengthened if they are improved in coordination with adjacent development that contributes to a sense of place.



Flores Street Underpass at Interstate 35

PRIORITY IMPLEMENTATION OF STREET TYPES

In general, the Study has identified potential transportation improvements that can support growth within the priority growth areas identified in the Downtown Strategic Framework Plan. However, recognizing that the City has limited resources, projects should be prioritized based on their potential to stimulate development and support future downtown growth. Criteria for assessment include:

- The potential for projects to improve attractiveness of and/or access to developable parcels;
- Location in growth areas that have current market demand;
- Contribution to the overall Downtown experience of pedestrians and those traveling by car and transit;
- Proximity to other public and private infrastructure and operational investments either made or slated to be made in the future.

Near- to Medium-Term Priorities

In the near- to medium-term, potential priority projects include:

1. Improvements to Support Adjacent Private Development

Flores Street, between Market Street and Old Guilbeau Street, where there is potential to support re-use of a strong historic building stock and increase activity through street-level uses;

César Chávez Blvd, between Main Avenue and I-37, where large underutilized sites and the development and amenity potential of HemisFair, present an opportunity to knit together the central business and tourism district and the vibrant residential neighborhoods in Southtown;

Alamo Street, between Market Street and Presa Street, where substantial new development potential exists at HemisFair and on the corner of Alamo Street and César Chávez Boulevard. There is significant opportunity to enhance the connection between the tourist-oriented portion of the Downtown Core and the vibrant Southtown residential neighborhoods to enhance the potential of residential development at and proximate to HemisFair;

Main Avenue and Soledad Street, where significant underutilized land or gateways to Downtown create opportunities for placemaking and new development;

Jones Street, between Broadway and Camden, where the presence of the San Antonio Museum of Art and substantial development opportunities present significant potential, and have importance as a major River crossing point;

Broadway, north of 3rd Street, where there is development momentum with on-going and proposed residential and commercial development, and additional potential may be created through a proposed streetcar alignment;

Nueva Street, between I-35 and Alamo Street, where there is significant potential for large scale civic and commercial mixed-use development, supported by on-going and proposed investment by all levels of government and the proposed streetcar alignment;

Market Street, between I-37 and Santa Rosa Street, where redevelopment of significant parcels and public uses can leverage development potential; and

Frio Street, between César Chávez Blvd. and Houston Street, where there is potential to expand the influence of UTSA and its students, faculty, and staff, for development potential on the Near West Side.

2. Improvements to Enhance Use of Existing Development

These improvements primarily support occupancy and vibrancy of existing development within the primary growth areas identified in the Strategic Framework Plan, with some infill opportunities. Recommended near- to medium-term opportunities include:

- Commerce Street between Santa Rosa and St. Mary's Street,
- Santa Rosa between César Chávez Blvd and Martin Street,
- Navarro Street between Villita Street and Convent Street,
- St. Mary's Street between Villita Street and Convent Street,
- S. St. Mary's between César Chávez and Pereida, and
- Laredo Street between Dolorosa and Houston Street.

3. Gateway Improvements

These improvements include those that improve wayfinding in and around Downtown, as well as the placemaking of major gateways to Downtown. Improvements can range from primarily aesthetic improvements to significant realignments. Recommended improvements to key gateways include:

- Martin/Third/Pecan/Houston,
- Pecan Street realignment,
- Houston, Bowie, Star intersection,
- Houston, Third, Bonham intersection,
- St. Mary's, Navarro, and Nueva intersection,
- Alamo, Commerce, Losoya intersection,
- San Pedro, Main, Navarro, Soledad intersection, and
- Jones, Camden, St. Mary's intersection.

Future Priorities

A number of the projects identified in the Study support longer-term growth potential Downtown, either because the 1) character of development proximate to a particular improvement and subsequent transportation needs will be substantially influenced by the redevelopment of a parcel or set of parcels whose use has not yet been determined, or 2) because the existing character and uses in a particular area are likely to change over time. These potential projects are recommended to be planned and developed in conjunction with development in adjacent areas.

1. Improvements Recommended to Occur in Conjunction with Development

These improvements include those in locations that may have less private development potential on adjacent parcels in the near-term, but have significant potential to create transformative change with significant public and/or large-scale redevelopment. Their timing should be determined by the planning of the major projects that will impact their character. Recommended projects that can support future development and should be implemented in conjunction with that development include:

- N. Flores Street**, north of Houston Street, whose future character is likely to rely significantly on the future use of Fox Tech High School;
- Frio Street**, between Houston Street and Martin Street, whose future character and use will be supported by any expansion by UTSA and the development of transit-oriented development around the proposed Westside Multimodal Hub.

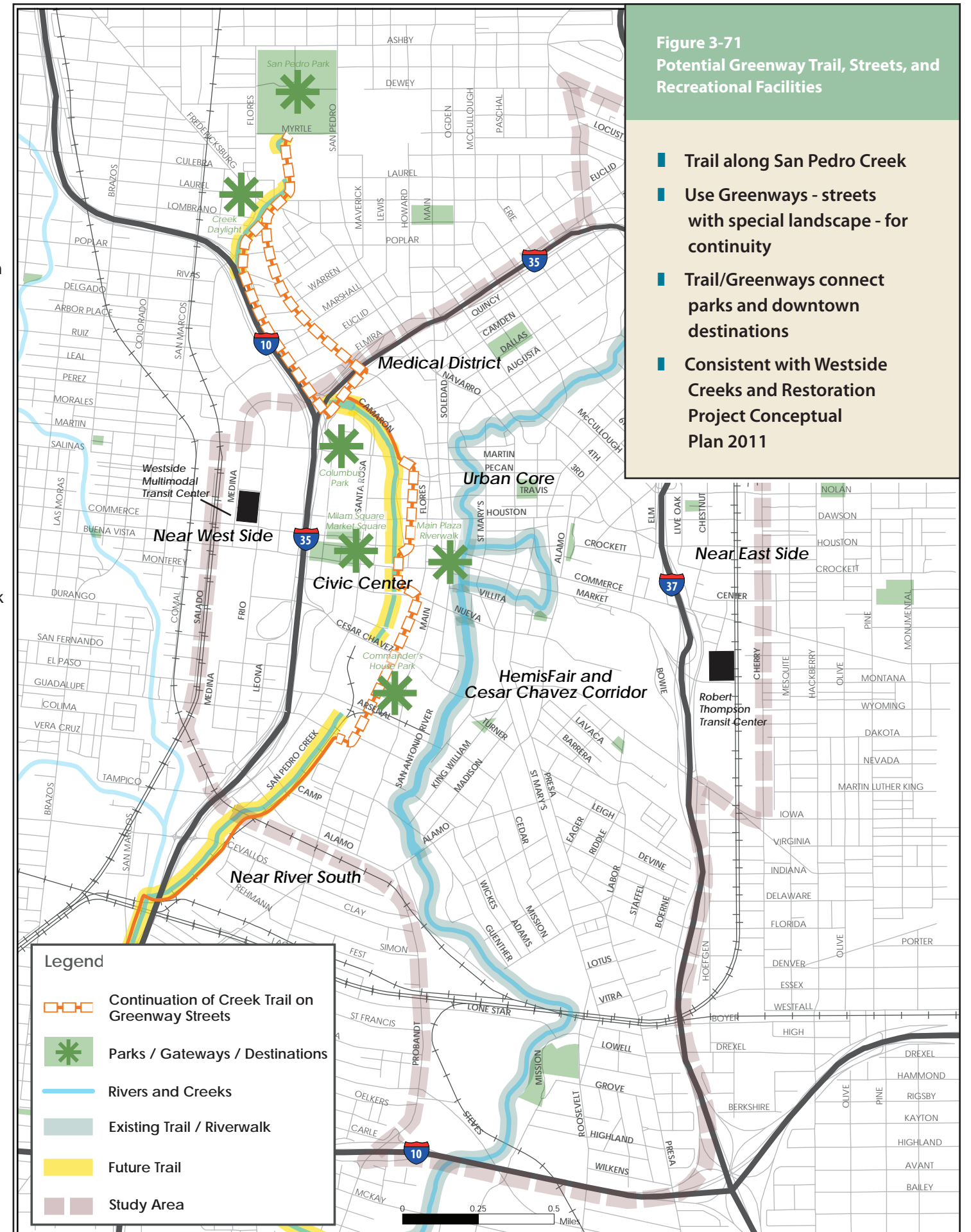
2. Improvements to Support Future Private Development

These improvements are likely to support longer-term development opportunities in Near River South. Although Near River South is one of the priority growth areas recommended in the Strategic Framework Plan, it is likely to develop over a longer time period than the other three growth areas, due to its continued industrial character and heavy industrial uses. As a result, the following longer-term projects are recommended to support the development of significant underutilized parcels in Near River South:

- Probandt Street;
- Lone Star Blvd;
- S. St. Mary's Street, south of Pereida Street; and
- Alamo and Probandt intersection.

URBAN TRAILS AND GREENWAY STREETS

San Pedro Creek follows the western edge of the downtown area. This north-south corridor creates great potential for expanding the greenway network to improve pedestrian connectivity on this side of Downtown. Currently, this area is a difficult place to walk around because of barriers that include the Interstate 35 overpass and streets carrying high volumes of traffic such as Commerce, Market and Santa Rosa Streets. Improving pedestrian facilities along the San Pedro Creek Corridor will create a safer walking environment that will help encourage business growth and increase activity in the area. The trail can also provide improved access to parks and other key destinations for those living in neighborhoods surrounding the San Pedro Creek. Improvements that should be prioritized include restoring the San Pedro Creek, creating greenway streets where restoration of the creek is not possible, expanding segments of the sidewalk where feasible and providing incentives to businesses to re-orient themselves to open towards the creek to create vibrancy similar to the River Walk, **Figure 3-71**.



TRANSPORTATION IMPROVEMENTS RECOMMENDED IN THE HEMISFAIR PARK MASTER PLAN

Improvements are being proposed for streets in and around HemisFair Park as part of the work associated with the HemisFair Park Master Plan. This project is the HemisFair Park Area Complete Streets Project. The proposed improvements were incorporated into the Downtown Transportation Study model. The design and construction of improvements identified for César Chávez Boulevard, from IH-37 to Alamo and for Alamo, from Market to César Chávez Boulevard are funded with 2007 Bond Program savings. Improvements identified for César Chávez Boulevard, from Alamo to the San Antonio River, for Alamo, south of César Chávez Boulevard to St. Mary's Street, for Nueva, Villita Street and Arciniega Street, all from Alamo to Presa and the internal park streets are not funded at this time. Market Street improvements from Alamo to Bowie Street are not funded, but the section from Bowie to Tower of Americas Way will be funded under the 2012 Bond Program Market Street Realignment project. The HemisFair Park Area Complete Streets Project has the following objectives:

- Humanize the car dominated corridors of Alamo and César Chávez;
- Incorporate multiple modes of transportation;
- Create connections with adjacent neighborhoods and with La Villita;
- Knit HemisFair to the emerging Cultural Corridor north through Downtown and south towards Mission Reach;
- Incorporate low-impact design; and
- Support HemisFair as a true urban neighborhood.

Below are the improvements that have been proposed but are not yet finalized:

César Chávez Boulevard

- **Alamo to IH-37** – maintain two travel lanes in each direction but reduce lane widths to 11 feet and increase midblock median width. Add on-street parking with stormwater planters and cycle track adjacent to sidewalks.



Proposed Westbound César Chávez Blvd. Source: MIG, Inc.

- **Alamo to the River** – maintain two travel lanes in each direction but add stormwater planters and a shared path on each side.

Alamo Street

- **César Chávez to Commerce** – multi-way boulevard consisting of center roadway with one travel lane in each direction and intermittent center left-turn lanes with local access roads on either side separated from center lanes with landscaped medians. Local access roads would serve low-speed, low volume destination traffic and would be shared with bicyclists and transit. On-street parking would be located on the local access roads.
- **César Chávez to Presa** – maintain the two travel lanes, bike lanes and on-street parking. However, introduce the concept of parklets which allows the parking space to be temporarily used for outdoor restaurant seating, farmers markets, or for special events.



Proposed Northbound Alamo Street. Source: MIG, Inc.

Market Street

- **Bowie Street to IH-37 Frontage Road** – Market Street is to be realigned as part of the 2012 Bond Program project. The proposed cross-section identified consists of reducing from 4 lanes to 3 lanes with stormwater planters and a bike lane.

Nueva Street

- **Alamo to Presa Street** – Remove one travel lane in each direction and the center turn lane/median to provide a single travel lane in each direction and reverse angle parking.

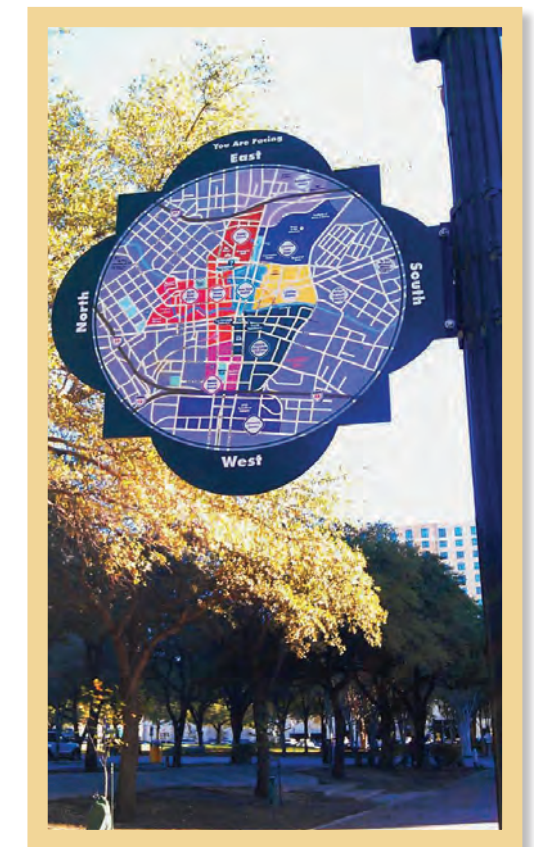
TRANSPORTATION RELATED IMPROVEMENTS RECOMMENDED BY THE SAN ANTONIO CONVENTION AND VISITORS BUREAU

Goals

- Enhance the ability of the San Antonio destination to attract leisure travelers and conventions.
- Increase the ability to sustain and enhance elements of the destination that are unique and authentic.
- Increase the economic impact delivered to the community from the leisure and convention industry.

Recommended Improvements

- Creation of a Downtown gateway for the southern stretch of the River and a gateway near LaVillita and HemisFair Park. Opportunity for improved streetscape along Nueva Street to encourage pedestrian traffic.
- Link the River North area to Downtown with an urban rail link, through expansion of the VIA transit system or private transportation provider.
- Expand Alamo Plaza and improve pedestrian safety by closing Alamo Street between East Houston and Crockett.
- Link Alamo Plaza to the River using a modern roundabout at the intersection of Alamo Street and East Crockett Street.
- A gateway improvement that commemorates the acequia, once running along the west side of what is now Alamo Street, by creating a water feature in front of the Alamo.



IMPROVEMENT CONCEPTS EVALUATED BUT NOT RECOMMENDED

MARKET AND COMMERCE STREET CONVERSION TO TWO-WAY TRAFFIC OPERATIONS

Two-way traffic volumes were developed for Commerce and Market for the future year 2020. The MPO Model for the Downtown network was modified to allow two-way traffic on Commerce and Market. The volumes in the interior of downtown are typically evenly distributed between Commerce and Market. However, because all westbound traffic must enter and leave downtown on Commerce, and all eastbound traffic must enter on Market, the volumes are very imbalanced between Commerce and Market near the Interstates.

The two-way network assumes the existing pavement is used with two through lanes in each direction and shared turn lanes. Because this configuration uses the full pavement width, there is no available room for sidewalk widening or bike lanes, and no dedicated turn lanes can be provided at intersections.

The signals were coordinated and optimized along Commerce and Market. In both the AM and PM peaks, the signal timing and traffic progression were optimized.

While one-way roads can theoretically be given “perfect” progression, progression with two-way roads requires attempting to simultaneously balance the progression of traffic in both directions. Because of the close spacing of signals in the two-way scenario, continuous progression cannot be achieved on Commerce and Market throughout the corridor, and vehicles will be required to stop at least once and likely more.

The intersection levels of service were compared to the levels of service for the one-way operation assuming a lane was removed on both Commerce and Market. While both conditions generally had acceptable levels of service, the two-way scenario has several intersections with LOS E or F. The two-way operation results in approximately 50 percent more total delay on Commerce and Market than the one-way operation.

Converting Commerce and Market to two-way would provide more convenient access to businesses located along the routes as well as making it simpler for drivers to navigate through Downtown. In addition, two-way operation improves access to the transit system since stops can be located on opposite sides of the same street. However, the two way operation also has the following disadvantages:

- Increased delay when compared to one-way operation.
- Two-way operation reduces the ability to progress traffic on Commerce and Market – even with optimized signals and offsets, all traffic must stop at least once along corridors.
- Because of the shared turn lanes at intersections, vehicles wishing to turn left at intersections must wait for gaps in opposing traffic delaying cars behind them.

- In one-way operation, vehicles can turn left from Commerce and Market unopposed at driveways. In the two-way operation, vehicles must wait for gaps to turn left. Vehicles behind vehicles turning left at mid-block must either stop and wait or try and change lanes.
- There are significantly more conflict points at intersections for two-way operation than one-way operation. Conflict points represent possible collision points or points where opposing vehicles cross paths. An increase in conflict points may lead to a higher accident rate. Conflict points between pedestrians and vehicles at intersections also increase when roadways are converted to two-way operation.
- Mid-block left-turns onto Commerce and Market must wait for gaps in two directions of traffic. This can increase delays and queues at parking lot and garage exits.
- Converting to two-way operation will require two lanes in each direction, eliminating any opportunity to widen the sidewalk and improve the public realm.

Because of these disadvantages, and the inability to improve bike or pedestrian facilities with the two-way operation, we recommend keeping Commerce and Market as one-way streets.

BIKE LANES ON FLORES

Bike lanes were evaluated as a potential improvement for Flores. Flores is identified as having bike lanes on the City’s Bike Plan. Due to the limited right-of-way, narrow lanes, and narrow sidewalks along the Flores corridor, installing bike lanes would require the removal of a travel lane. However, when analyzed with the projected 2020 volumes, it was determined two lanes would be needed at the major signalized intersections to achieve acceptable levels of service. It was therefore determined bike lanes could not be implemented on Flores without significantly degrading the vehicle level of service. Sharrow markings are not recommended because of the narrow lane widths.

BIKE BOULEVARD ON PRESA

The City’s Bike Plan identifies a bike boulevard on Presa throughout the downtown area. However, this study does not recommend a bike boulevard on Presa for the following reasons:

- The median on César Chávez restricts through movements between the north and south legs of Presa.
- Presa becomes a one-way road in the downtown core, which can limit bike connectivity.
- Bike boulevards are designed to discourage vehicles through implementation of traffic calming features. However, the commercial nature of the street will promote vehicles on the road.

There are nearby, parallel bike routes on Alamo, St. Mary’s, and Navarro, reducing the need for bike facilities on Presa to provide connectivity.



Cyclist in traffic



Crockett Street



SECTION FOUR: DOWNTOWN STREET DESIGN

Beyond specific near- and long-term capital improvement projects, this final section of the Downtown Transportation Study serves as a guide for developing future street improvement projects. The section aims to provide a way to identify and prioritize improvements for Downtown streets, outlining a framework for great streets and using a street typology to guide improvements. The section describes a general approach and key concepts in street design, as well as specific recommendations for street elements and dimensions based on five unique street types. Tailored to the unique context of Downtown and the project study area, the design emphasis of each street type guides the desired characteristics and priority features – and therefore the necessary investments – to improve the function and design of Downtown streets.

WHAT IS A STREET TYPOLOGY?

A collection of types, each representing a unique combination of physical, cultural, and transportation contexts.



A FRAMEWORK FOR GREAT STREETS

In order to create design guidelines and to help prioritize future investment in Downtown streets, the Downtown Transportation Study uses a street typology framework to organize streets into distinct street types based on shared characteristics. A typology is simply a collection of types, each representing a unique combination of physical, cultural, and transportation contexts. The types reflect an understanding that streets are host to numerous users and must serve many functions, from public activity space to vehicular mobility. Street design must therefore strive to foster high-quality public spaces, be sensitive to surrounding context, and be flexible enough to accommodate change.

HIGH QUALITY PUBLIC REALM

Great cities are known by the communities and public places that define them. Great plazas, parks, markets, and streets all generate and support local economic, cultural, social and leisure activities. These places are often sacred to residents, enriching lives and bringing people together. To visitors, the culture, character, and identity of a city are transmitted through these special places. As a result, people and places are two fundamental building blocks of any great city.

San Antonio has many great attributes that make it a pleasant place to live and visit, including its wealth of culture and history. Downtown San Antonio plays an important role in the

city's economy and is known for a number of destinations and amenities, including the Alamo and the River Walk. However, there are many areas, aside from these destinations, that lack the same power to attract. Blank-walled buildings, vacant storefronts, surface parking, and an urban realm dominated by wide streets and narrow sidewalks all contribute to this dilemma. In order to attract residents to work, shop, and live Downtown – all key factors in creating a vibrant urban environment – as well as to continue attracting a large visitor population, the Downtown needs other great places. As one of the most significant allocations of public space in any city, and as the focus of significant public investment, Downtown streets represent a major opportunity.

As San Antonio grows, opportunities abound to ensure Downtown matches the larger region's reputation as one of America's best places to live. Place-based ("placemaking") initiatives are a key way to promote vitality and prosperity in Downtown. Placemaking is the process of creating great places, drawing on community assets and the creativity of local residents to create a common vision for vibrant public spaces. Designing comfortable, multi-modal, and safe streets not only improves a city's aesthetics, but also can have positive functional, economic, and health impacts for communities.

SECTION FOUR OUTLINE

This section presents a street typology to establish recommended characteristics for each street in the Downtown study area. These types are supplemented by more specific design strategies in the form of design overlays and opportunities. Finally, the section concludes with detailed design parameters and recommendations for designing in a constrained right-of-way, a common condition in Downtown San Antonio.

CONTEXT SENSITIVITY

Successful streets respond and contribute to the places they traverse. A tree-lined, narrow street that is appropriate in a residential area may not be appropriate for a more commercial area with more pedestrians and transit riders. A context-sensitive street will be designed in a way that responds to the community, property-owner, business-owner, and other user input. This input will need to be considered early in the process of street design. A context-sensitive street will also be responsive to the physical setting in which it is found, including aesthetic, environmental, scenic, historic, and natural resource values. A street with historic buildings and mature trees on both private property and the public right-of-way will require a different treatment from one with more modern buildings that is adjacent to a creek or river.

The presence of a variety of contexts in the Downtown study area, from historic single-family residential neighborhoods such as King William to the intense streets of the Downtown Core like Commerce and Market Streets, means each street may require different treatment but should strive to safely accommodate all appropriate users, as established by San Antonio's Complete Streets policy. The types of users may vary from one street, neighborhood, or community to the next. As a result, there is no prescriptive design standard or single approach to creating great places with great streets.

Context sensitive design is increasingly becoming a standard way of doing business. The US Federal Highway Administration (FHWA), the Institute of Transportation Engineers (ITE), the American Association of State Highway and Transportation Officials (AASHTO) and many city transportation departments offer guidance on the process and design of context sensitive streets. This practice is supportive of complete streets and placemaking, which are also endorsed by the DTS.

FLEXIBILITY IN DESIGN

The street design guidance provided in the Downtown Transportation Study mirrors a decades-long national trend favoring flexibility in design. Instead of providing specific design values, the guidance is presented in the form of a range of design values for different components of the street, based on a "common," or "typical," public right-of-way. **The designer of individual projects is expected to use professional judgment in selecting specific design values consistent with the ranges, in order to implement priorities with respect to travel mode, urban design features, and land use context.**

Design priorities are therefore adapted to on-the-ground conditions on particular streets as improvements are made; each street is a unique design project. The "typical" right-of-way may require that street elements be concentrated on one side or another in order to achieve the type's goals. Ideally, a street's design will be symmetrical, a condition most easily achieved in larger, or expanded, rights-of-way. Some streets may be very constrained in right-of-way, allowing only a limited pedestrian realm, or requiring changes to travel lanes. The Detailed Street Design Specifications Table, **Figure 4-30, page 24**, provides recommended space allocation among the parts of the street for each street type.

DEFINING STREET TYPES

Each street or corridor in the study area is assigned a specific street type based on its land use and transportation characteristics. Specific criteria were used to identify which type corresponds to each street or corridor. First, the types reflect the adjacent existing and planned land uses, as well as the activity these uses generate. Second, the types consider the transportation function of Downtown streets, including network function, connectivity, traffic volumes, and modal emphasis of a street or corridor.

Street type assignments are supplemented in several ways. First, design overlays help differentiate one Downtown street from another. Overlays modify typical street designs to meet the requirements of a special need or function, or to create a distinctive appearance. An overlay can cover an entire Downtown area or selected streets or segments. For example, a typical application of a design overlay would be illustrating how to accommodate transit routes on a particular street type, such as allocating roadway to transit lanes, identifying sidewalk seating and shelter, and specifying curb extensions and/or cut-aways to allow for transit vehicle stops. Only selected streets in the study area have, or will have, transit routes along them, so only those streets need transit-specific design guidance.

In addition, two other approaches can provide more targeted design guidance: special conditions and opportunities. Special conditions address basic situations arising within streets of a specific type, while opportunities illustrate how to implement unique features across the types in order to achieve various desired elements and priorities. An example of special condition guidance would be addressing one-way streets like Main Avenue and Soledad Street in the Downtown Core, while a design innovation would be improving route branding and clarity along high-volume routes like Martin / Pecan / 3rd / Houston.

Finally, some streets in the study area require specialized, unique treatment based on their surrounding contexts and users, including Commerce, Market, Broadway, and Alamo Streets. These "special streets" must be individually designed.

See the Special Streets Section for more detail.



King William neighborhood street



View of Main Plaza and Commerce



Horse-drawn carriage on Presa Street



Main Plaza

DOWNTOWN SAN ANTONIO STREET TYPES

Each street in Downtown San Antonio has a unique combination of characteristics and features, such as street trees, plantings, seating, lighting, land uses and economic activity, architectural style, right-of-way width, and transportation uses and functions. Taken together, these elements establish a street's character and function. The street types provide priority design features and specifications based on a "common," or "typical," public right-of-way.

The design priorities lay the foundation for how each street type should look and function. Each type is a category that represents a broad spectrum of street widths and conditions. The guidance illustrates preferred street dimensions and elements within the typical right-of-way. Partly as a legacy of San Antonio's long history, individual streets often vary in width from one block to the next, so each type must accommodate this variation.

KEY CONCEPTS AND TERMS

Before describing the characteristics of each type, it is important to establish a common vocabulary for describing concepts and terms related to street design:

- **Bicycle boulevard:** A street emphasizing bicycle movement while also allowing vehicle movement. *See page 14.*
 - **Bicycle sharrow:** A pavement marking indicating that a lane is shared with bicycle traffic.
 - **Buffer:** Physical feature or space separating street elements, commonly between different travel modes (walk/bike, bike/automobile).
 - **Buffered bicycle lane:** A bicycle lane separated from travel lanes by a buffer zone. *See page 19.*
- Components of the Street** *See page 5.*
- **Traveled way:** Accommodates vehicular traffic and provides safe crossing for pedestrians.
 - **Streetside:** Accommodates a wide range of pedestrian activities.
 - **Semi-public realm:** Defines the edge of the street and the boundary between public and private property.
 - **Curb cut:** Graded ramp allowing vehicle access between travel lanes and the sidewalk, commonly to provide access to adjacent properties.
 - **Curb ramp, ADA-compliant:** A curb cut for pedestrian use commonly found at intersections and crosswalks, and meeting the Americans with Disabilities Act (ADA) accessibility design standards (see the most recent U.S. Access Board and PROWAG requirements and FHWA PROWAAC guidelines).
 - **Crosswalk, high-visibility paint:** A pedestrian crossing marked in a high contrast/reflective paint color.
 - **Crosswalk, special paving:** A pedestrian crossing marked with different paving materials from the travel lanes, often with different colors and/or textures.



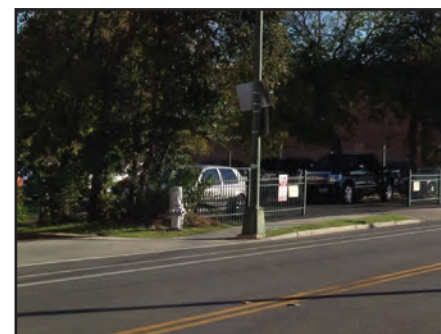
Bicycle boulevard



Bicycle sharrow



Buffered bicycle lane
Washington, D.C.
Source: Keith Hom



Curb cut

■ **Cycletrack:** A bicycle lane and buffer zone located between the curb and parking lane. *See page 19.*

■ **"Flex Zone":** Portion of the street used for parking lanes, as well as a variety of other purposes over the course of the day and week, including streetside expansion, temporary parklets, loading and valet zones, bicycle parking, informal landscaping, and more.

■ **Landscaping, formal:** Well-defined, permanent landscape features including planting boxes for shrubs and flowers, and grated tree wells for larger street trees.

■ **Landscaping, informal:** Permanent or movable landscape features including movable planters, as well as planting strips with lawn, shrubs, and street trees.

■ **Lighting, conventional:** Standard overhead street lamps.

■ **Lighting, distinctive:** Street lamps of distinctive design quality, often tied to city districts and offering greater character than conventional lamps.

■ **Lighting, pedestrian:** Lighting oriented toward the streetside and clear way to provide safe conditions for pedestrians.

■ **Lighting, safety:** Lighting oriented to the traveled way to provide greater visibility for moving vehicles.

■ **Parklet:** A temporary Flex Zone installation that extends the streetside and provides additional public space for pedestrians. *See page 20.*

■ **Rain garden/pervious infrastructure:** Landscape features designed to absorb, retain and filter stormwater. *See page 26, and photo, page 4.*

Right-of-way

■ **Typical right-of-way:** A right-of-way width, commonly found in the study area, used to describe space allocation among the basic street types.

■ **Expanded right-of-way:** A larger right-of-way width, found in the study area, used to illustrate how additional space can be allocated among the components of the street.



Cycle track



Parklet



"Flex" zone



Distinctive lighting

- **Limited right-of-way:** A constrained right-of-way width found in the study area, used to illustrate how to make trade-offs in allocating space among the components of the street.

- **Route branding:** Establishing common design elements (logos, colors, banners, signage) along a corridor to provide a common identity.

- **Route clarity:** Improved directional signage and unified route naming system (if necessary) to aid navigation.

- **Screening:** Vertical screens to separate elements in the right-of-way, typically between the streetside and private property, and are intended to improve streetside aesthetics and perceived safety. Screens can be made of many materials and may be vegetated.

- **Site furniture:** Numerous elements located in the streetside, including café chairs and tables, benches, newspaper racks, lean rails, mailboxes, trash receptacles, and more.

- **Transparent façade:** A building face of glass or other material that allows users in the street to see into private property. Typically used in commercial and retail buildings for merchandise display and to draw in customers.

- **Yield condition:** A street with one, flexible-direction travel lane in which two-way traffic must pass carefully, or alternate turns.

- **Well-defined edge:** Buildings, street trees, and screening help create a sense of enclosure, helping create a comfortable urban experience for pedestrians.



Formal landscaping



Informal landscaping



Transparent façade



Rain garden / pervious infrastructure, San Antonio.



Well-defined edge



Yield condition on narrow street



Site furniture



Route branding

COMPONENTS OF THE STREET

Streets are fundamentally defined by two primary zones: the traveled way and the streetside. These zones come together at intersections, which must balance the competing needs of numerous users. Additionally, streets are framed by the buildings and uses in the semi-public realm, which lines each side of the street. Together, these zones frame important public space and influence not just travel along a street, but also the speed, ease, and safety of movement. **See Figure 4-1.**

The Traveled Way: Accommodates vehicular traffic and provides safe crossing for pedestrians. This zone can include travel lanes, dedicated transit or bicycle lanes and facilities, on-street parking, and medians.

- **Parking lane:** Parallel, perpendicular, or angled parking; additional elements may include street trees, bicycle racks, protected café seating, and other flexible uses. These uses may be allowed only at limited times.
- **Travel lane:** Vehicle throughway, with width depending predominantly on vehicle mix. Residential streets have smaller lane widths, while industrial or working streets should have wider lanes to accommodate truck traffic. Transit vehicles also require wider lanes.
- **Median/turning lane:** Divides or buffers traffic flowing in opposite directions. Wider medians can provide pedestrian refuges at intersections.

The Streetside: See Figure 4-2 Accommodates a wide range of pedestrian activities. This zone can be as simple as a clear travel way meeting the standards of the Americans with Disabilities Act (ADA), or as complex as a bustling public space that hosts sidewalk dining, window shopping, and transit stops along with the clear zone. Activities that take place in the streetside can vary by time of day and time of year. Streetside design and management recognizes three zones:

- **Frontage:** Area adjacent to property and building façades; provides additional pedestrian comfort, can accommodate window shopping, door clearance, outdoor café seating, merchandise display, benches, planters, and more. Adjacent to off-street parking, the frontage zone can be used to provide an attractive edge between the semi-public realm and the streetside.
- **Clear way:** Continuous open pedestrian travel zone whose width is based on the level of streetside activity and urban context. ADA requirements define the minimum horizontal and vertical clear path dimensions (as of 2012, 5 feet horizontally and 80 inches vertically— see the most recent U.S. Access Board and PROWAG requirements and FHWA PROWAAC guidelines).

- **Furnishings:** Buffer and activity zone, separating pedestrians from vehicular traffic in the traveled way. This zone can accommodate a diversity of features, including street tree wells, landscaping, outdoor café seating, transit stops, public open space, public art, seating, market areas, and kiosks.
- **Edge:** Area adjacent to the curb allowing for vehicle clearance, including overhangs, tall vehicles, extended mirrors, and open car doors. This area can also accommodate parking meters, traffic signs, streetlights, vertical utilities, fencing, newspaper racks, and bike parking.

Intersections: Establish how multiple users (vehicles, bicycles, and pedestrians) in both zones interact by adjusting approach visibility, approach speed, crossing distance, and crosswalk markings.

The Semi-Public Realm: Defines the edge of the street and the boundary between public and private. The degree to which the public is invited in varies, from private homes to shops and cafes. Building height and bulk, façade transparency, setbacks, and land uses impact the character and activity in the streetside and traveled way.

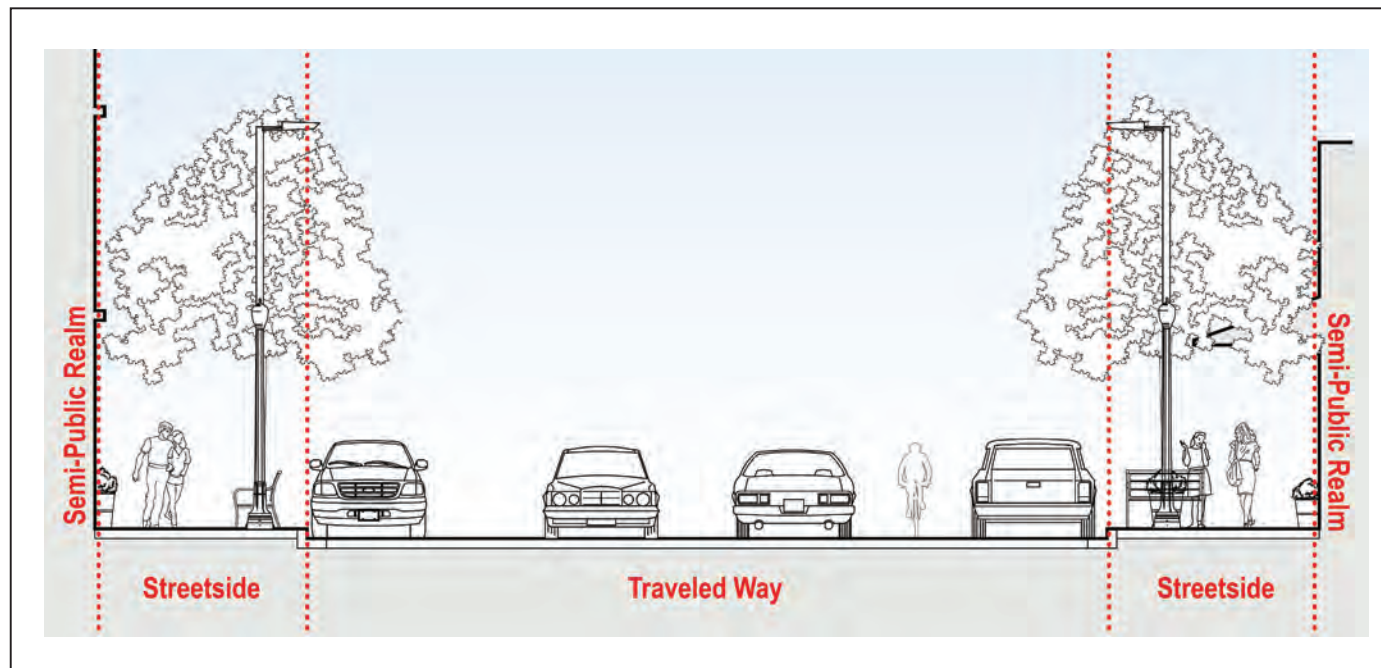


Figure 4-1 Components of the Street

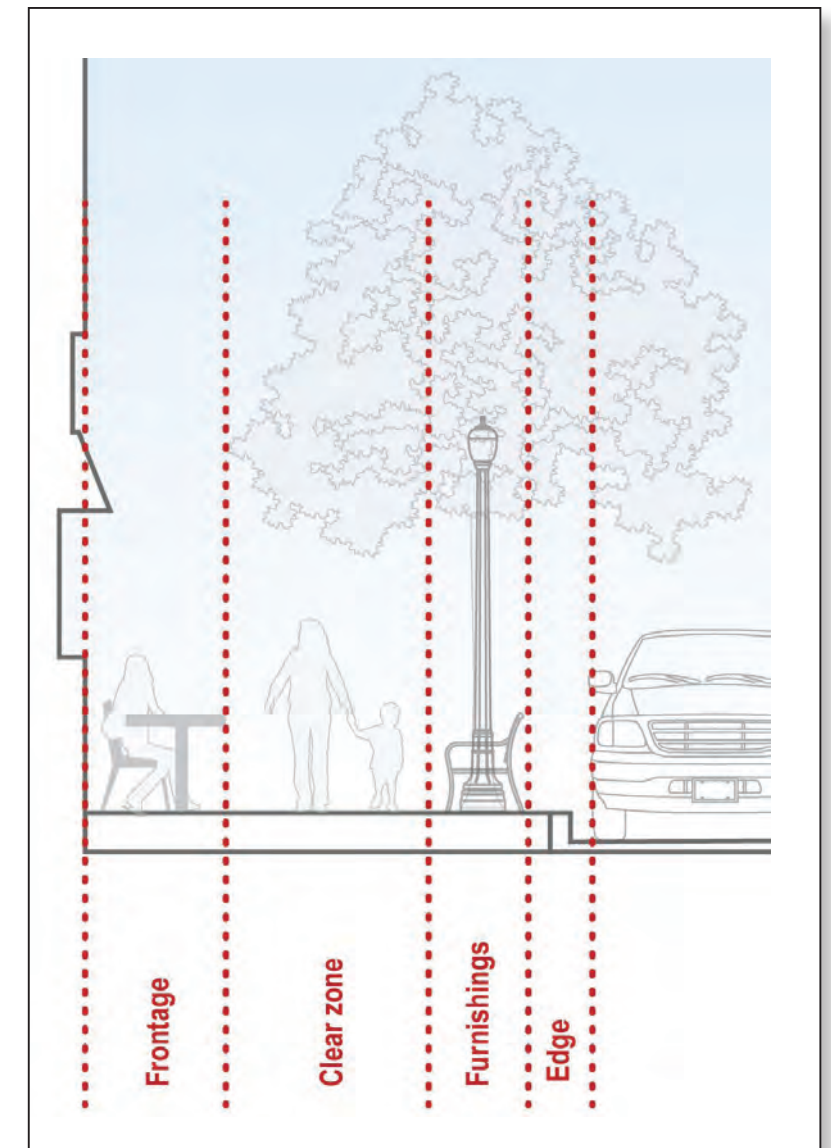


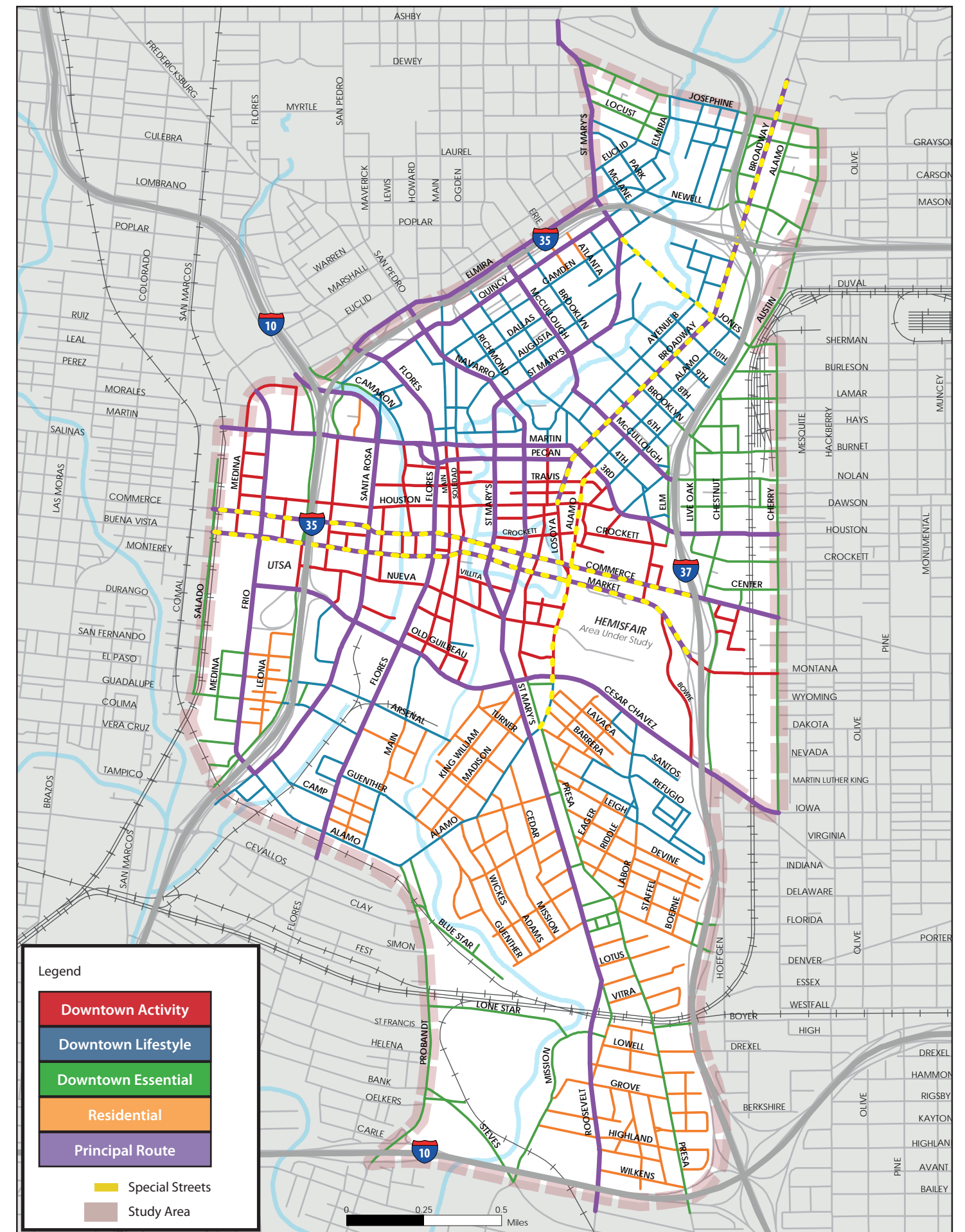
Figure 4-2 Components of the Streetside

STREET TYPE OVERVIEW AND MAP

The Downtown Transportation Study assigns each Downtown street one of five street types, representing different ways of combining elements from within each part of the street. The five types are Downtown Activity, Downtown Lifestyle, Downtown Essential, Residential, and Principal Route. The types are summarized in the table below. Each street in the project study area has been assigned to a type, as shown in the Street Typology Map, to the right.

Table 4-1 | Overview of Street Type Characteristics

	Downtown Activity	Downtown Lifestyle	Downtown Essential	Residential	Principal Route
Description	Safe, comfortable pedestrian realm for accessing the core's mix of uses and activities	Safe, comfortable access to local and surrounding destinations for autos and pedestrians	Medium volume street surrounded by a mix of land uses, including industrial, distribution, services, and housing	Quiet, walkable, neighborhood street	High volume corridor for accessing Downtown
Design emphasis	Pedestrian movement, facilities, and adjoining economic activity	Lively public space compatible with a variety of adjacent uses, including urban residential	Pedestrian safety and accommodation of a mix of vehicles (buses, trucks, cars, and bikes)	Low traffic, low speed, and pedestrian safety	Corridor capacity, route clarity, and pedestrian safety
Where can I find it?	Downtown Core	Predominantly multi-family residential zones, particularly high change, mixed-use areas	Generally at the intersection of neighborhoods and around highway network	Stable, predominantly single family neighborhoods	Connecting major destinations within and outside the Downtown
Example Streets	Houston, Travis, Main Ave	Josephine, Avenue B, Labor., Alamo (NE of 3rd)	Cherry, Chestnut, Probandt	Lavaca, King William	César Chávez, Frio, St. Mary's, Navarro, McCullough Ave, Martin/Pecan/3rd/ Houston
Priority Features					
	Ample streetside	Pedestrian buffers	ADA min. clear way	Narrow travel lanes	Route branding
	On-street parking	"Flex Zone"	Pedestrian buffers	On-street parking	Route clarity
	"Flex Zone"	Expanded streetside	Accommodate larger vehicles	ADA min. clear way	Pedestrian intersection safety
	Well-defined edges	Formal landscaping	Informal landscaping	Informal landscaping	Formal landscaping
	Pedestrian buffers	Informal landscaping			Informal landscaping
	Pedestrian lighting	Pedestrian lighting			Pedestrian buffers
	Formal landscaping	Well-defined edges			Raised median
		Bulb-outs			



FIVE BASIC STREET TYPES

1 | DOWNTOWN ACTIVITY STREETS

Downtown Activity Streets serve San Antonio’s Downtown Core, the most intensely developed portion of the Downtown study area. This district’s activity relies on a comprehensive system of pedestrian sidewalks and paths, including the River Walk, which complements the street network.

Arranged in a grid along small, mixed-use blocks, Downtown Activity streets create a relatively compact area accessible by foot, bicycle, or transit. These streets emphasize pedestrian mobility and economic activity, particularly at the sidewalk level. Ideally, the streetside accommodates a wide variety of activities, serving as a “front porch” for businesses and offering important public realm amenities. Houston Street, Travis Street, and Main Avenue are classified as Downtown Activity streets.

PRIORITY FEATURES IN DOWNTOWN ACTIVITY STREETS

Ample streetside: Very high levels of pedestrian and economic activity require the largest streetsides, with emphasis on the clear way and furnishings zones. Ample streetsides allow more room for pedestrian movement and amenities in the public realm, such as seating, public art, and retail kiosks.

On-street parking: The parking lane buffers pedestrians from moving vehicles in the traveled way and also accommodates the parking needs of business customers. Downtown Activity streets may accommodate parallel or angled parking.

“Flex Zone:” Allows use of portions of the parking lane for a variety of purposes over the course of the day and week, including streetside expansion, temporary parklets, loading and valet zones, bicycle parking, informal landscaping, and more.

Well-defined edges: Coordinate frontage and edge zones to clearly define the boundaries of the traveled way and streetside, including marking the transition from public to private property. Create a sense of enclosure using a continuous edge of buildings, screening, street trees, and pedestrian buffers.

Pedestrian buffers: Increase pedestrian safety by adding buffers to the furnishings and edge zones of the streetside, including plantings, street trees, site furniture, and parking meters. Parked vehicles and bicycle facilities further separate moving vehicles from the streetside.

Pedestrian lighting: Ensure the clear way and overall streetside are well lit to improve visibility and safety for pedestrians. Light fixture spacing should be adjusted according to brightness, ensuring the light is not obscured by street trees and plantings. Distinctive light fixtures may be appropriate.

Formal landscaping: Well-defined, permanent landscape features not only soften the urban environment, add visual interest for all users, buffer pedestrians from the traveled way, and help create a sense of enclosure, but they also make streets more comfortable by providing shade, slowing wind, and absorbing rainfall. Formal landscaping includes planting boxes for shrubs and flowers, and grated tree wells for larger street trees.

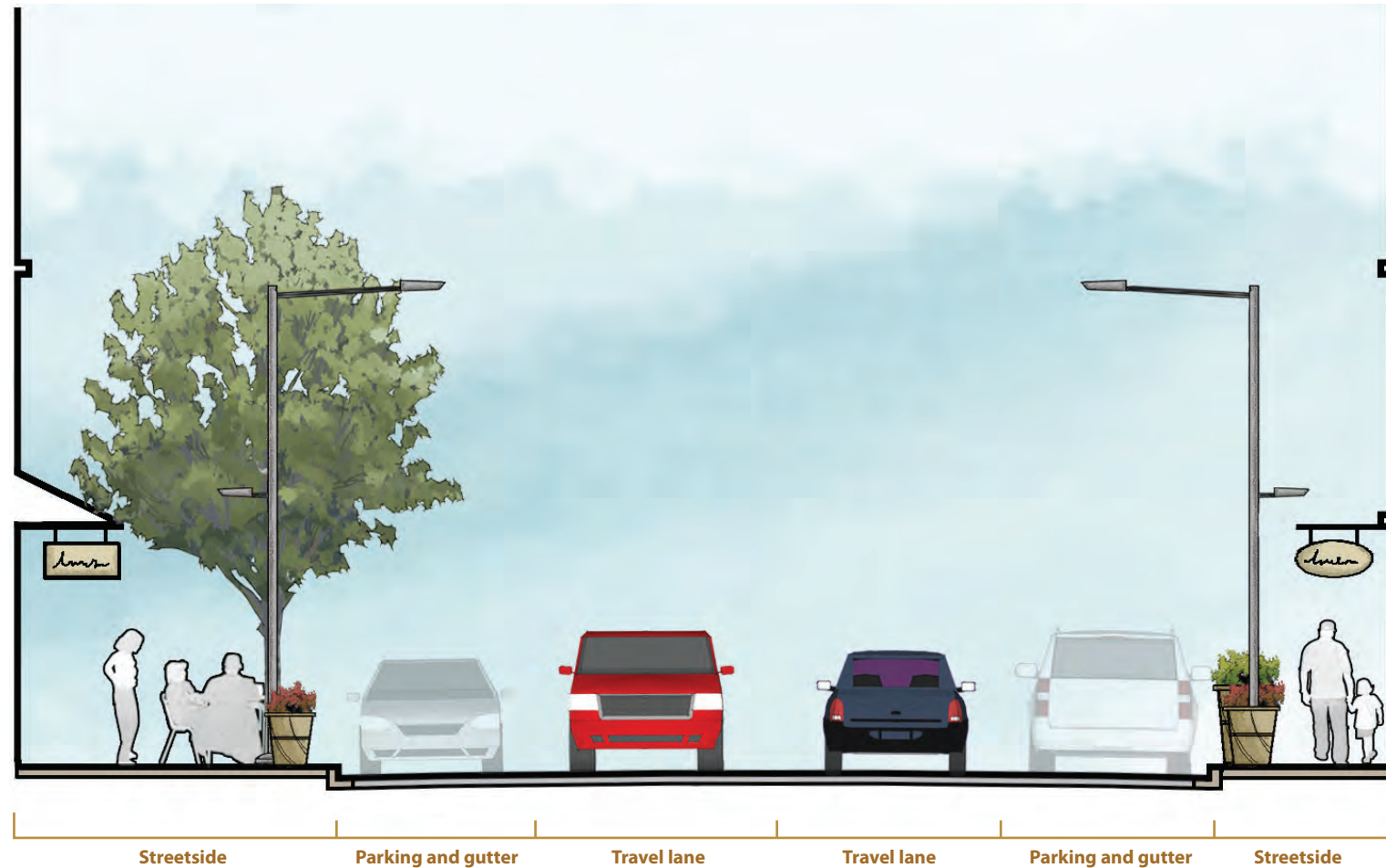


Figure 4-3 Typical Downtown Activity Cross-section

TYPICAL RIGHT-OF-WAY CROSS-SECTION AND PLAN

The typical Downtown Activity street right-of-way accommodates one travel lane in each direction with parallel on-street parking.

DESIRED STREET CHARACTERISTICS IN DOWNTOWN ACTIVITY STREETS

Public Right-of-Way

- 2 lanes
- Two-way travel
- Rich in site furnishings and amenities
- Pedestrian-scaled block lengths
- River Walk access points
- Public art installations
- Few curb cuts

Semi-Public Realm

- Continuous street edge
- Transparent ground-floor façades
- Pedestrian-scaled architecture, consistent with surrounding context
- Zero setback without easement

DTS Basic Street Types

1

DOWNTOWN ACTIVITY STREET

Typical Cross-Section

DTS Basic Street Types
1
 DOWNTOWN ACTIVITY STREET
 Typical Plan View

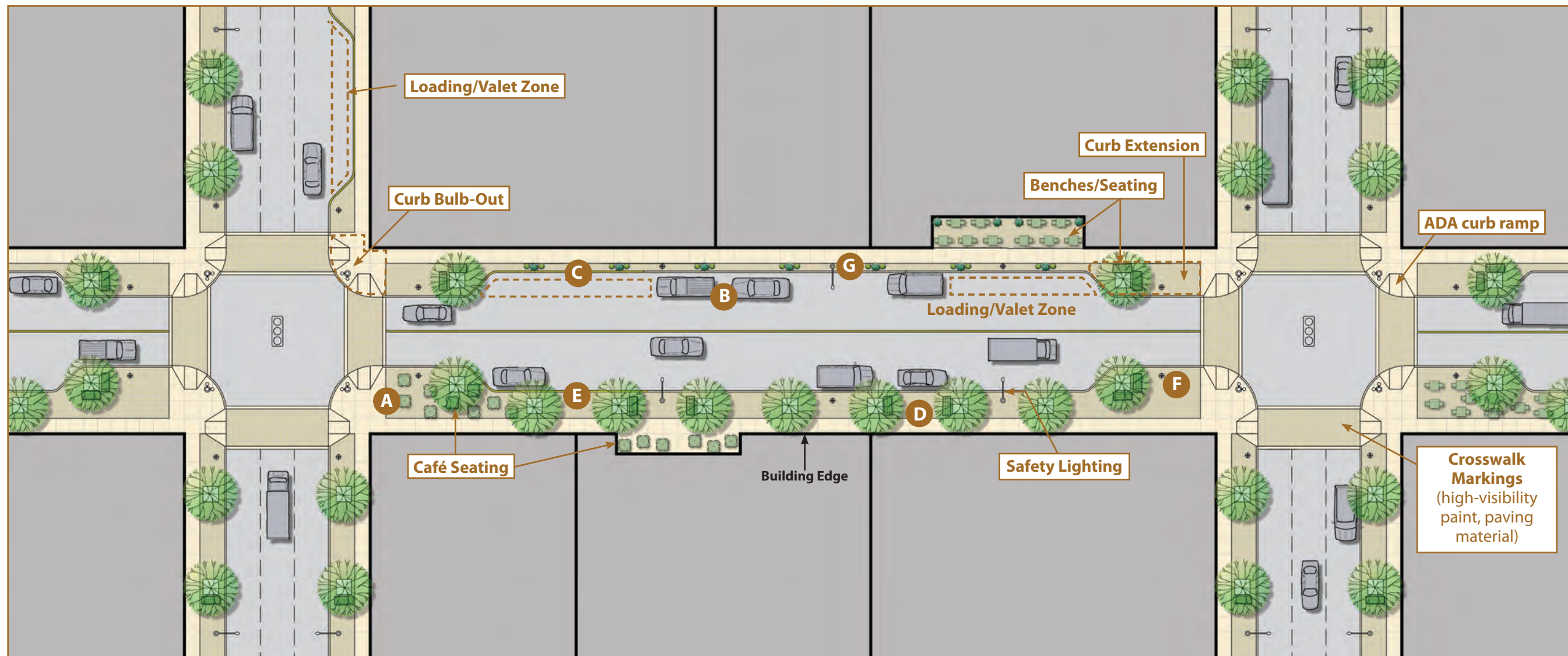


Figure 4-4
 Typical Downtown Activity Street Plan



Ample streetside



On-street parking



"Flex Zone"



Well-defined edges



Pedestrian buffers



Pedestrian lighting



Formal landscaping

DESIGN OVERLAY - TRANSIT STREET

Public transit vehicles operate on some Downtown Activity streets. Within the typical right-of-way, a wider streetside accommodates a bus shelter and related facilities adjacent to the vehicle stop area.

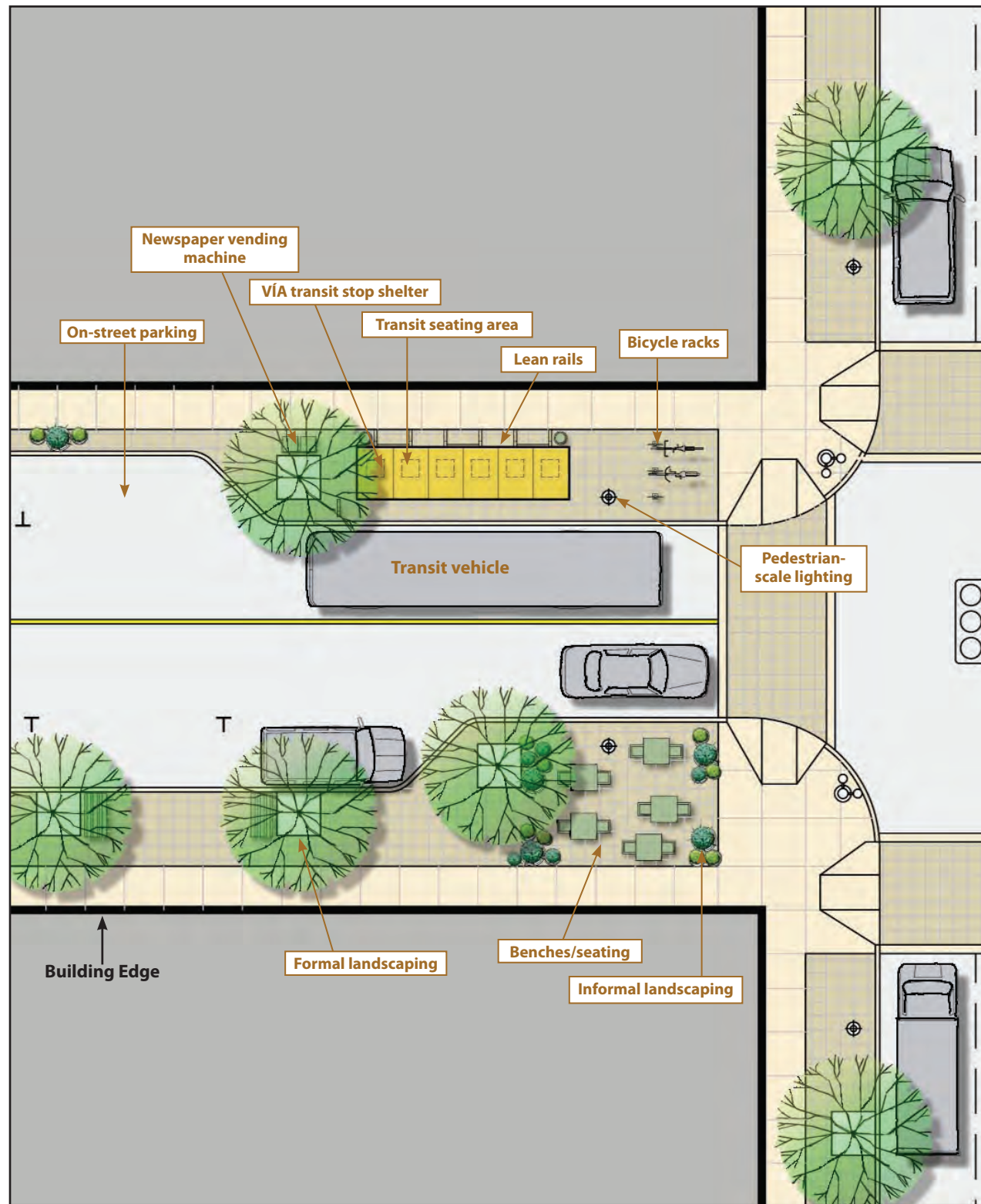


Figure 4-5 Transit Street Overlay on Downtown Activity Streets

ONE-WAY CONDITION

Some Downtown Activity streets have only one direction of vehicular travel. Within the typical right-of-way, two travel lanes can be accommodated, along with angle parking on one side and parallel on the other. A bicycle lane can be included adjacent to either the parallel or back-in angle parking.

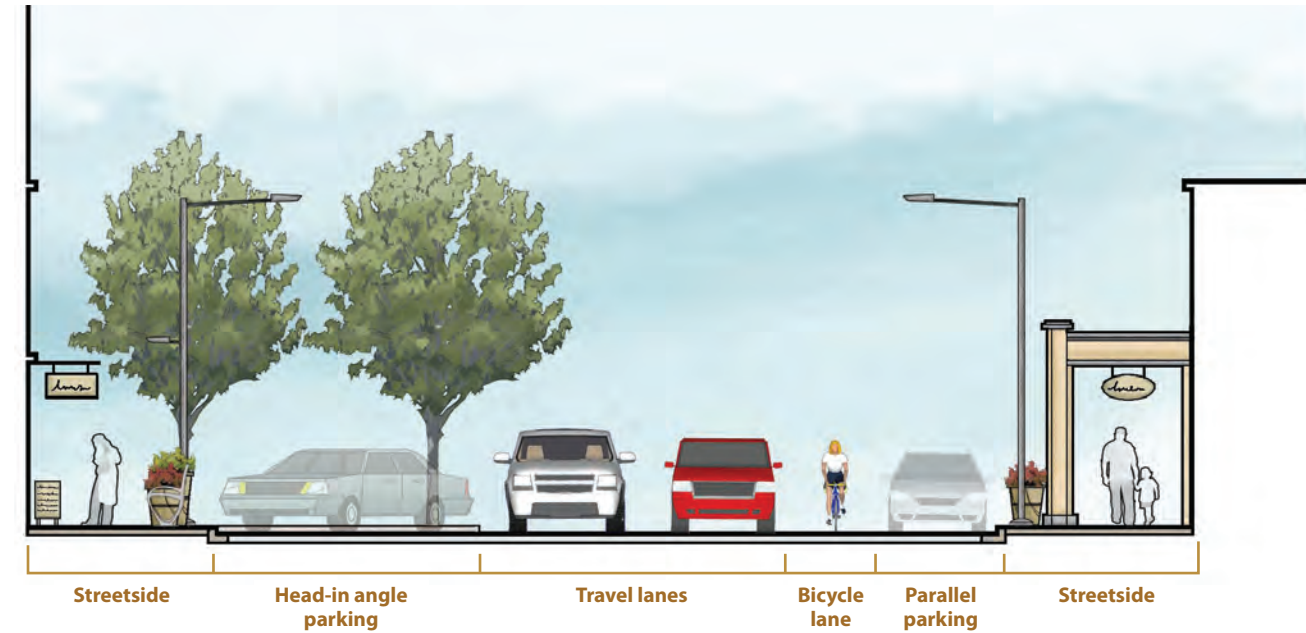


Figure 4-6 Head-In Angle Parking on One-Way Downtown Activity Streets

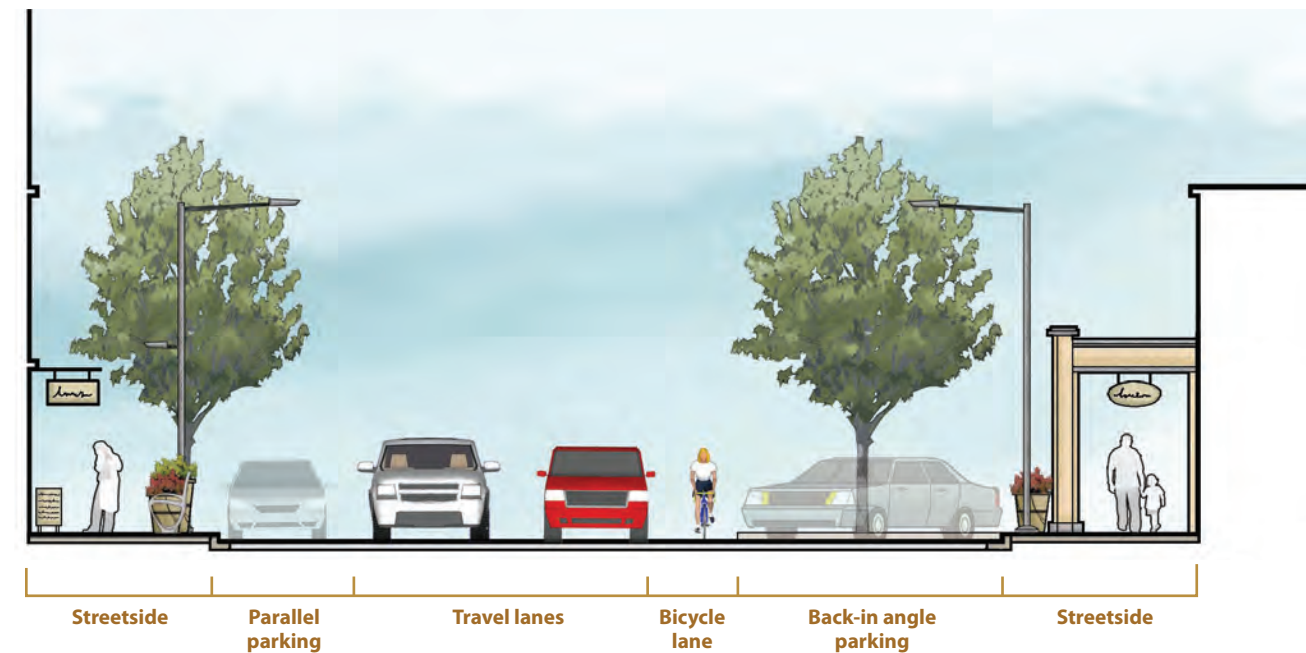


Figure 4-7 Back-In Angle Parking on One-Way Downtown Activity Streets

2 | DOWNTOWN LIFESTYLE STREETS

Downtown Lifestyle Streets serve mixed-use areas adjacent to the Downtown Core that have high potential for change and can accept new residential development. As areas outside the Downtown Core continue to grow, Josephine Street, Avenue B, and Labor Street will all become Downtown Lifestyle streets. This street type supports small blocks with a variety of uses at varying intensities, balancing residential and commercial activity. The resulting streets provide safe, comfortable access to local and surrounding destinations – for vehicles, pedestrians, as well as bicycles where applicable.

Downtown Lifestyle Streets must accommodate a lively mix of activities and users, and balance pedestrian mobility and safety, transit accommodations, and vehicle access. The streetside must manage the needs of shoppers, pedestrians, and transit riders—including seating, plantings, and other buffers to separate foot traffic from the traveled way.

PRIORITY FEATURES IN DOWNTOWN LIFESTYLE STREETS

Pedestrian buffers: Increase pedestrian safety by adding buffers to the furnishings and edge zones of the streetside, including plantings, street trees, site furniture, and parking meters. Parked vehicles and bicycle facilities further separate moving vehicles from the streetside.

“Flex Zone:” Allow use of portions of the parking lane for a variety of purposes over the course of the day and week, including streetside expansion, temporary parklets, loading and valet zones, bicycle parking, and informal landscaping.

Expanded streetside: Significant levels of pedestrian and economic activity benefit from larger streetsides, with emphasis on the clear way and furnishings zones. Expanded streetsides allow more room for pedestrian movement and amenities in the public realm, such as seating and landscape features.

Formal landscaping: Well-defined, permanent landscape features not only soften the urban environment, add visual interest for all users, buffer pedestrians from the traveled way, and help create a sense of enclosure, but they also make streets more comfortable by providing shade, slowing wind, and absorbing rainfall. Formal landscaping includes planting boxes for shrubs and flowers, and grated tree wells for larger street trees.

Informal landscaping: Less formal permanent and movable landscape features also provide many of the comfort benefits of formal landscaping. These features include planting strips with lawn, shrubs, street trees, and movable planters with shrubs and small trees, and may be used in conjunction with formal landscaping.

Pedestrian lighting: Ensure the clear way and overall streetside are well-lit to improve visibility and safety for pedestrians. Light fixture spacing should be adjusted according to brightness, ensuring the light is not obscured by street trees and plantings. Distinctive light fixtures may be appropriate.

Well-defined edges: Coordinate frontage and edge zones to clearly define the boundaries of the traveled way and streetside, including marking the transition from public to private property. Create a sense of enclosure using a continuous edge of buildings, screening, street trees, and pedestrian buffers.

Curb bulb-outs: Extending the street-side curb into the traveled way at intersections and midblock for features such as street trees creates additional public space, provides a traffic calming effect, and reduces intersection crossing distance for pedestrians.

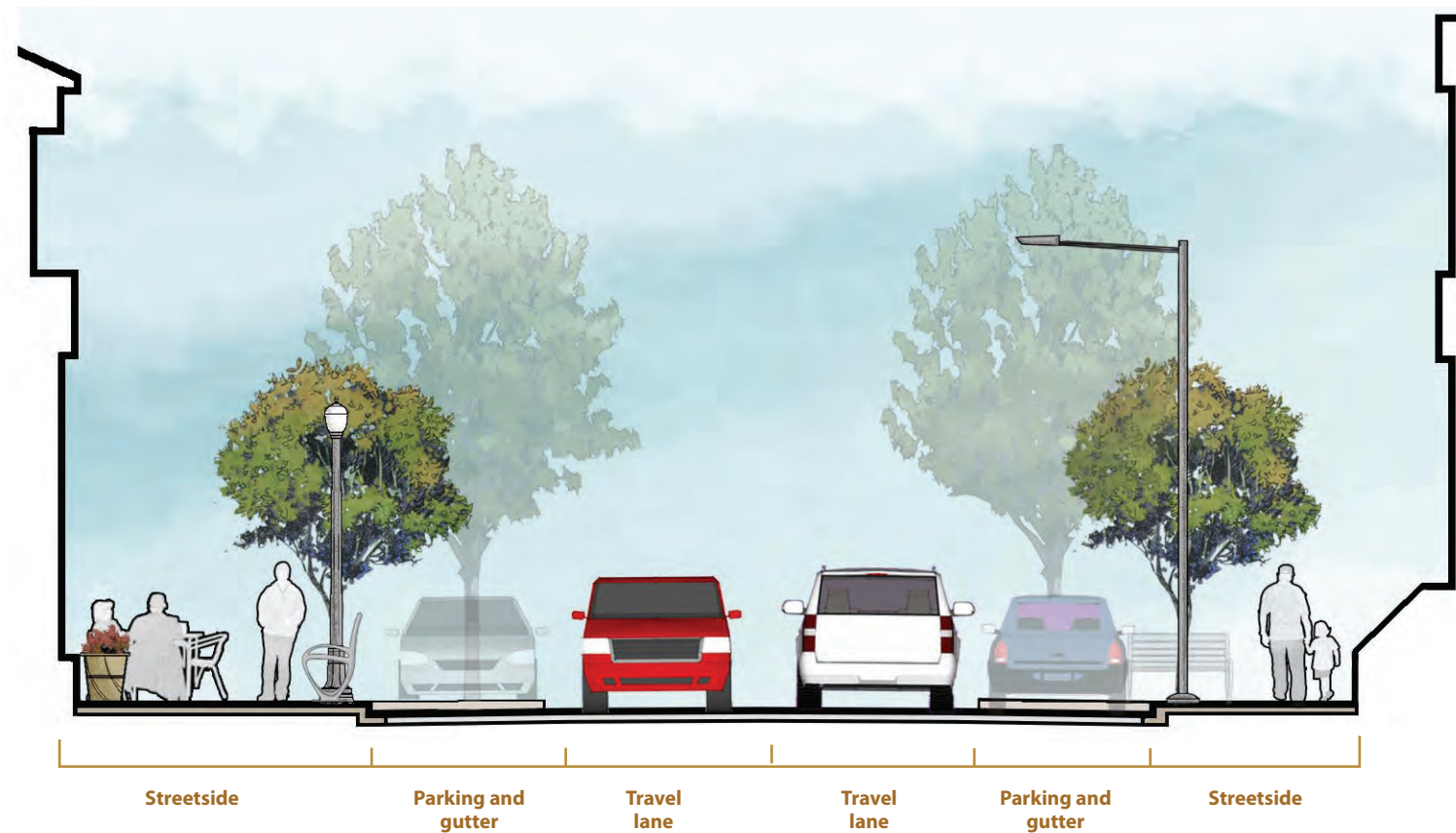


Figure 4-7 Typical Downtown Lifestyle Cross-section

TYPICAL RIGHT-OF-WAY CROSS-SECTION AND PLAN

The typical Downtown Lifestyle street right-of-way can accommodate one travel lane in each direction with parallel on-street parking.

The streetside will accommodate both residential and ground-floor commercial uses, including cafes, shops, and offices.

DESIRED STREET CHARACTERISTICS IN DOWNTOWN LIFESTYLE STREETS

Public Right-of-Way

- 2 lanes
- Two-way travel
- Site furnishings and amenities
- Pedestrian-scaled block lengths
- Few curb cuts

Semi-Public Realm

- Continuous street edge
- Transparent ground-floor commercial façades
- Pedestrian-scaled architecture, consistent with surrounding context
- Zero setback without easement

DTS Basic Street Types

2

DOWNTOWN LIFESTYLE STREET

Typical Cross-Section

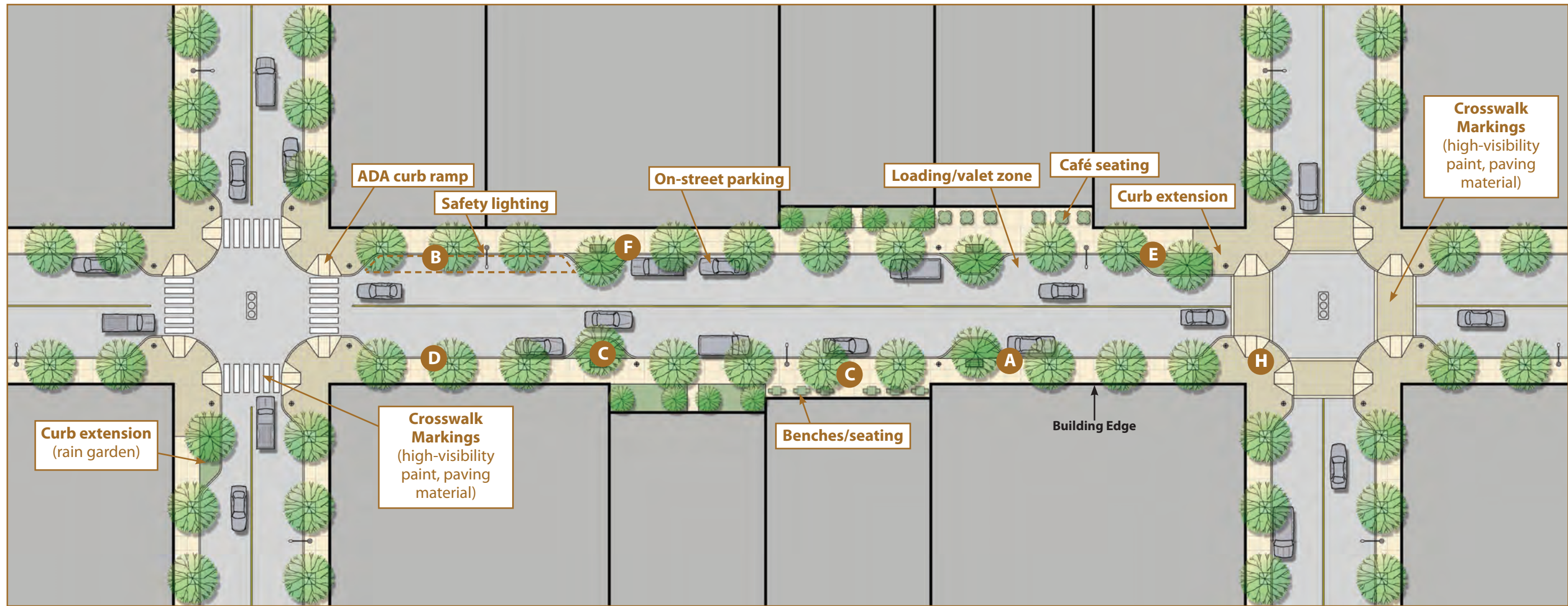


Figure 4-8 Typical Downtown Lifestyle Street Plan



Pedestrian buffers



"Flex Zone"



Expanded streetside



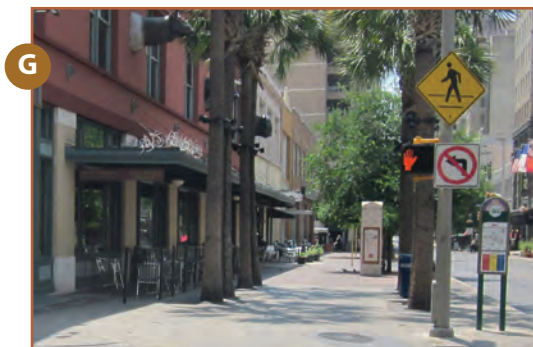
Formal landscaping



Informal landscaping



Pedestrian lighting



Well-defined edges



Curb bulb-outs

BICYCLE ACCOMMODATION

Selected Downtown Lifestyle streets may include bicycle facilities. Typical streets may share travel lanes with bicyclists, while on wider streets a dedicated bicycle lane can be implemented between the travel and parking lanes.

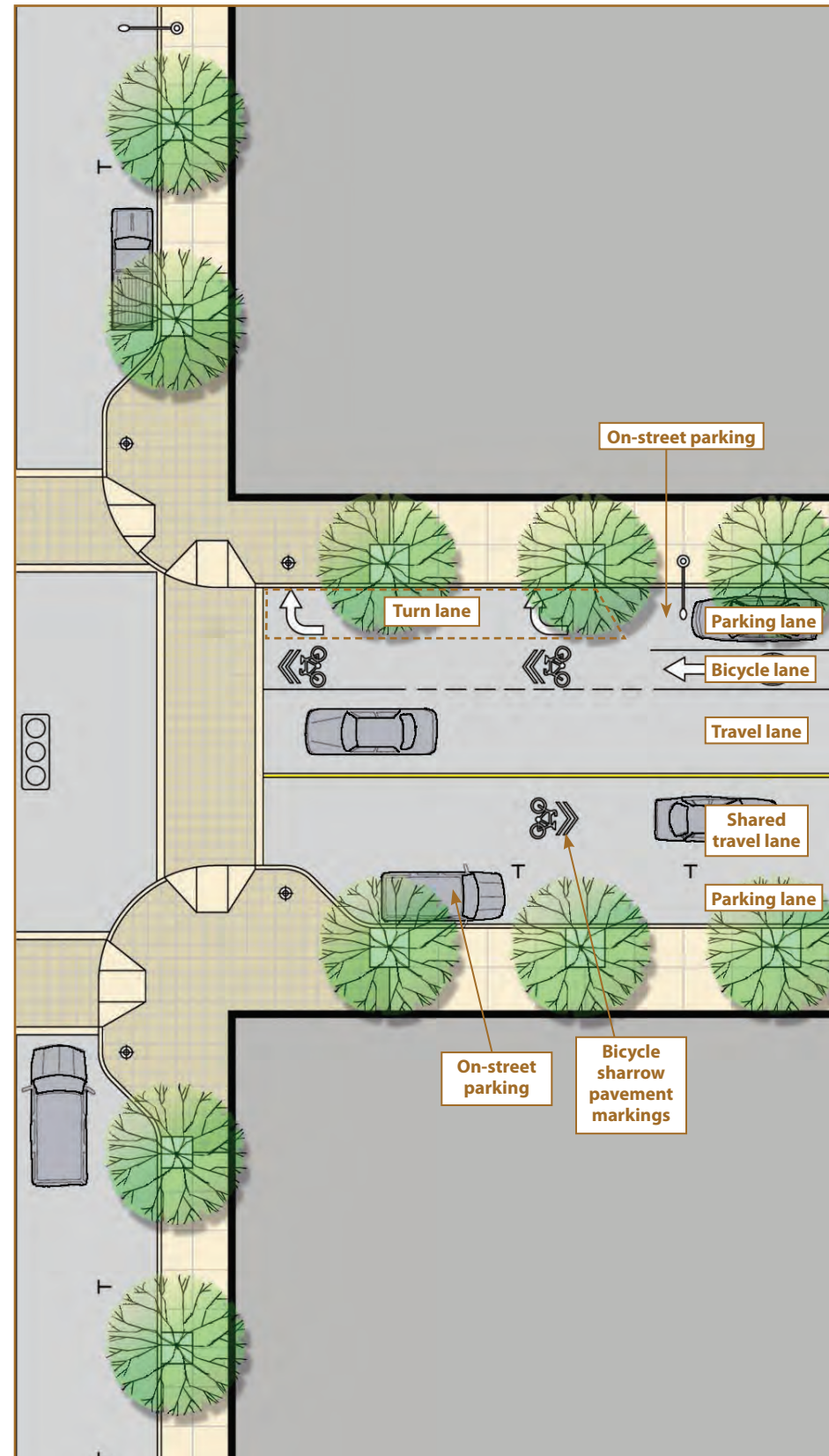


Figure 4-9 Bicycle Lane on Downtown Lifestyle Streets

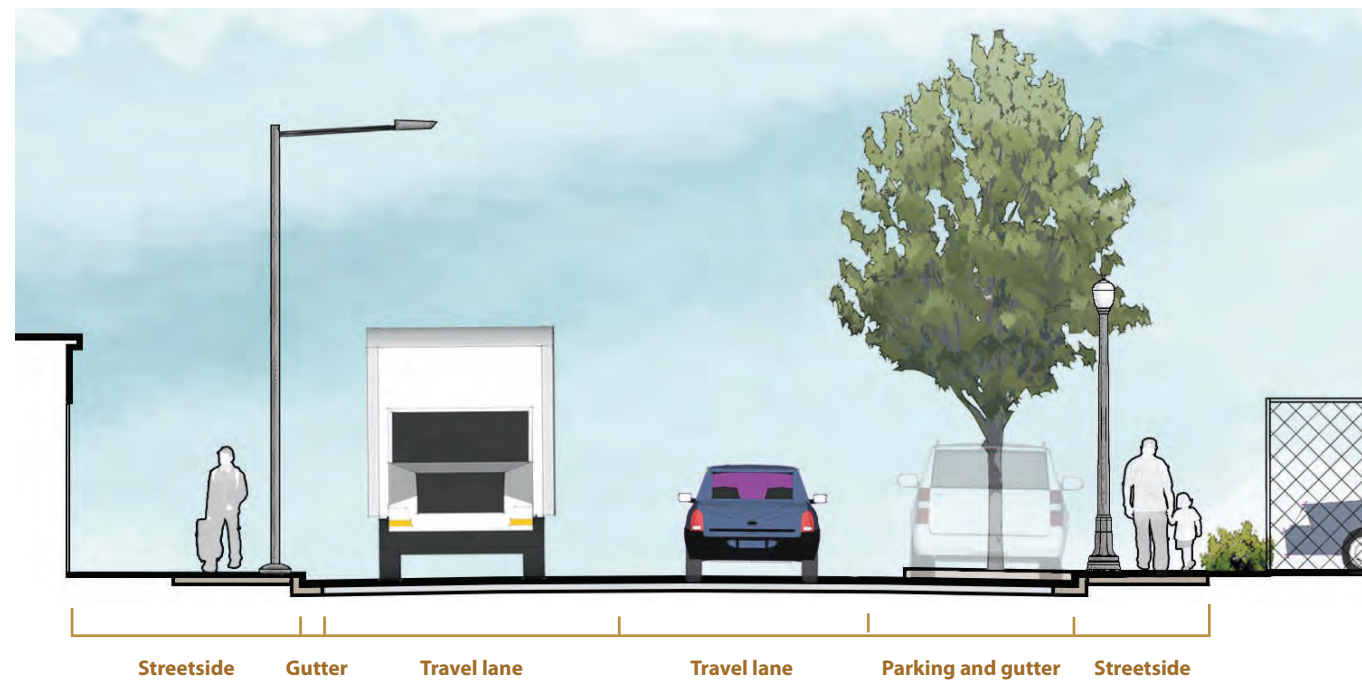


Figure 4-10 Typical Downtown Essential Street Cross-section

3 | DOWNTOWN ESSENTIAL STREETS

Downtown Essential Streets are medium volume streets that accommodate the needs of the industrial, distribution, and services businesses that are located along them. These streets must also provide essential facilities for safe movement of pedestrians and residents living along or near them. Street design emphasizes the safe movement of multiple modes including trucks, cars, bicycles, and pedestrians.

Blocks along Downtown Essential streets vary in size, but lots typically have lower building coverage than elsewhere in Downtown, with an inconsistent street edge. Some blocks accommodate different uses on opposite sides of the street (such as industrial and residential), potentially requiring different treatment of the streetside. Overall, these streets are host to lower levels of street activity than those in or adjacent to the Downtown Core. Cherry Street, Chestnut Street, and Probandt Street are all Downtown Essential Streets.

PRIORITY FEATURES IN DOWNTOWN ESSENTIAL STREETS

ADA minimum clear way: The clear way must meet the minimum accessible design standards of the Americans with Disabilities Act (ADA) for two-way sidewalk travel, horizontally and vertically. For 2012, the minimums are 5 feet in width, and 80 inches in height.

B. Pedestrian buffers: Increase pedestrian safety by adding buffers to the furnishings and edge zones of the streetside, including plantings, street trees, and parking meters. Parked vehicles and bicycle facilities

further separate moving vehicles from the streetside.

Accommodate larger vehicles: Larger travel and parking lanes help Downtown Essential streets accommodate the larger vehicles, such as delivery and supplier trucks, that support the industrial, services, and commercial businesses frequently located along their length.

Informal landscaping: Particularly along residential frontages, permanent or movable landscape features on Downtown

Essential Streets help soften the physical environment, add visual interest for all users, buffer pedestrians from the traveled way, and make streets more comfortable by providing shade, slowing wind, and absorbing rainfall. Planting strips with lawn, shrubs, and street trees are preferred for residential frontage. Movable planters with shrubs and small trees are appropriate for constrained streetsides.

TYPICAL RIGHT-OF-WAY CROSS-SECTION AND PLAN

The typical Downtown Essential street right-of-way can accommodate one travel lane in each direction with on-street parallel parking on one side. Adjoining uses may include industrial, service, commercial, and residential uses. Buildings should be oriented to the street, but may not define a continuous edge. Although sidewalk space may be limited, opportunities to improve urban landscaping should be along residential frontages. Along off-street parking or open lot areas, screening should provide further edge definition where possible.

DESIRED STREET CHARACTERISTICS IN DOWNTOWN ESSENTIAL STREETS

Public Right-of-Way

- 2 lanes
- Two-way travel
- Intermittent driveway curb cuts
- Pedestrian-scaled block lengths
- Safety and pedestrian lighting
- Street furniture adjacent to retail businesses and housing

Semi-Public Realm

- Continuously defined public/private boundary (building, screening)
- Screening along street for safety, visual and auditory protection where appropriate
- Business signage

DTS Basic Street Types

3

DOWNTOWN ESSENTIAL STREET

Typical Cross-Section

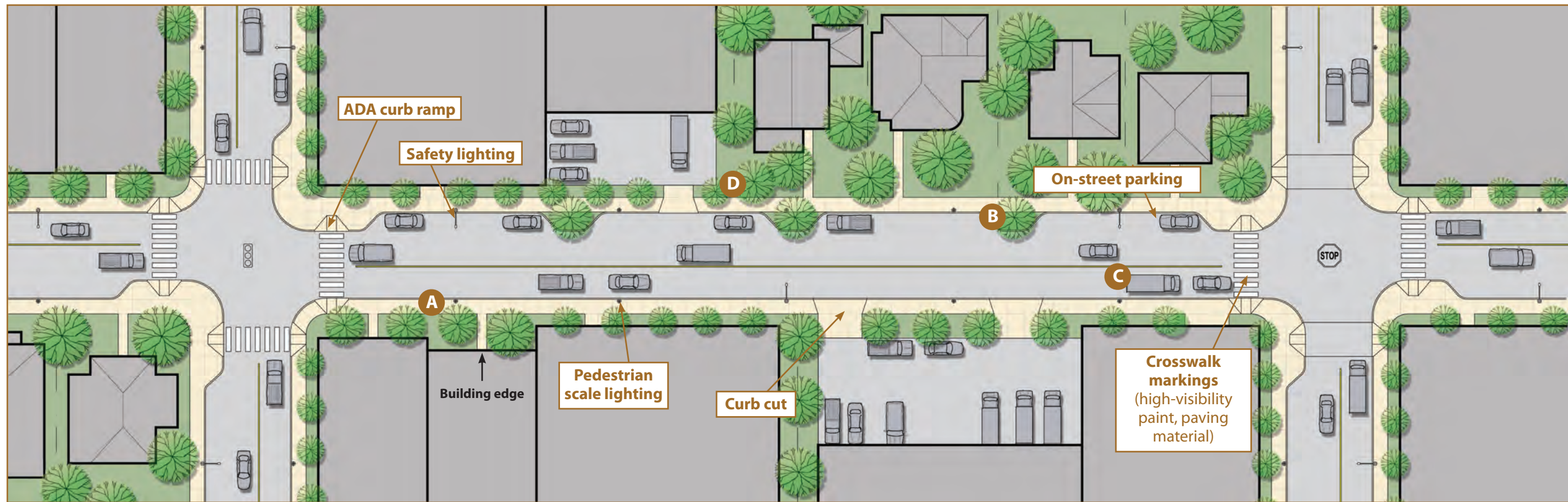


Figure 4-11 Typical Downtown Essential Plan



ADA minimum clear way
Source: Judy Babbitt



Pedestrian buffers



Accommodate larger vehicles



Informal landscaping

BICYCLE BOULEVARD

Although not every Downtown Essential street can dedicate a portion of the traveled way for bicycles, some wider, lower-volume routes can become important parts of the Downtown bicycle network. One appropriate strategy is a *bicycle boulevard*, which emphasizes bicycle movement while also allowing vehicle traffic.

Bicycle Boulevard principles

- Alert drivers to bicycle priority with roadway painting and signage
- Limit speeds along route to limit stops for cyclists
- Limit stop signs and signals to encourage traffic flow
- Use signals and stop signs to enable bicycles to cross major routes
- Divert vehicle traffic off-street periodically to discourage extended use



Bike Boulevard, Berkeley, California

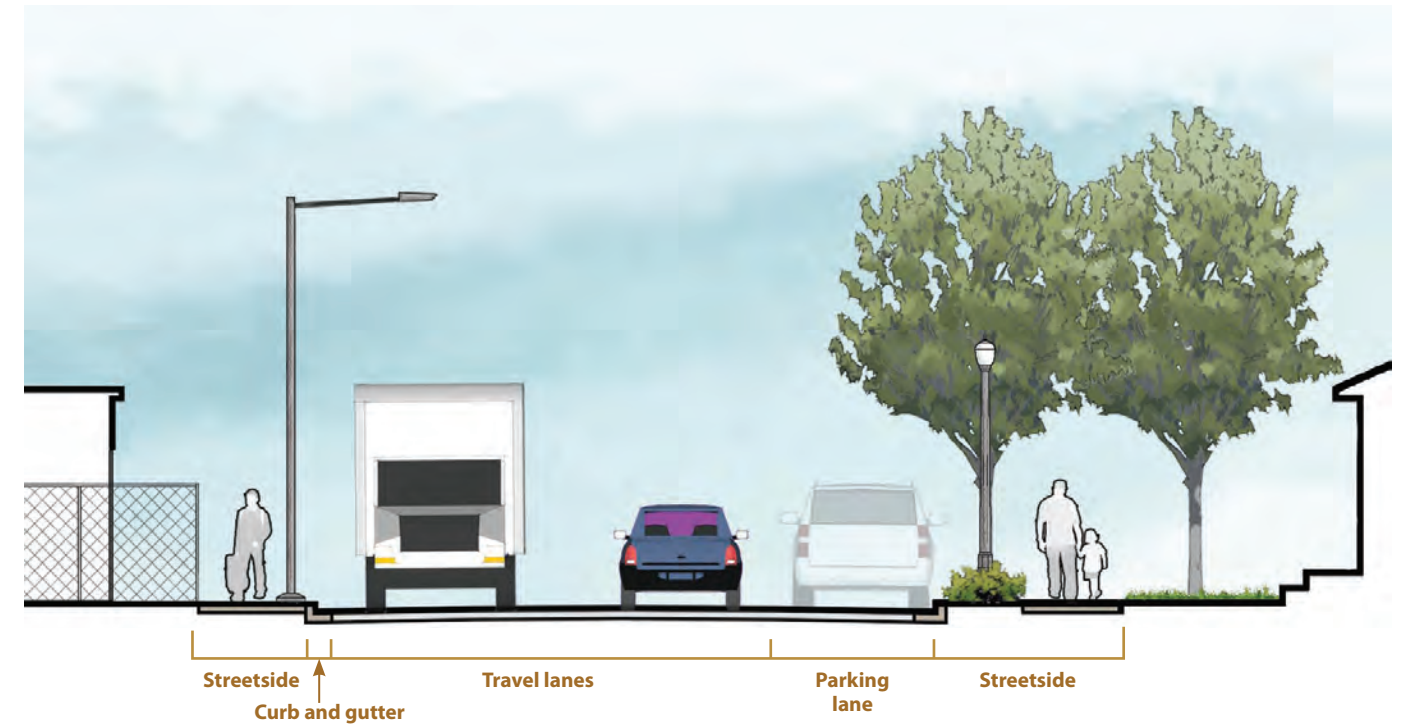


Figure 4-12 Hybrid Facing Land Uses on Downtown Essential Streets

HYBRID FACING LAND USES

Some Downtown Essential street segments have different facing land uses, requiring a different strategy for each side. For residential and consumer commercial uses, additional space should be allocated to accommodate pedestrian buffers between the clear way and parking lane.

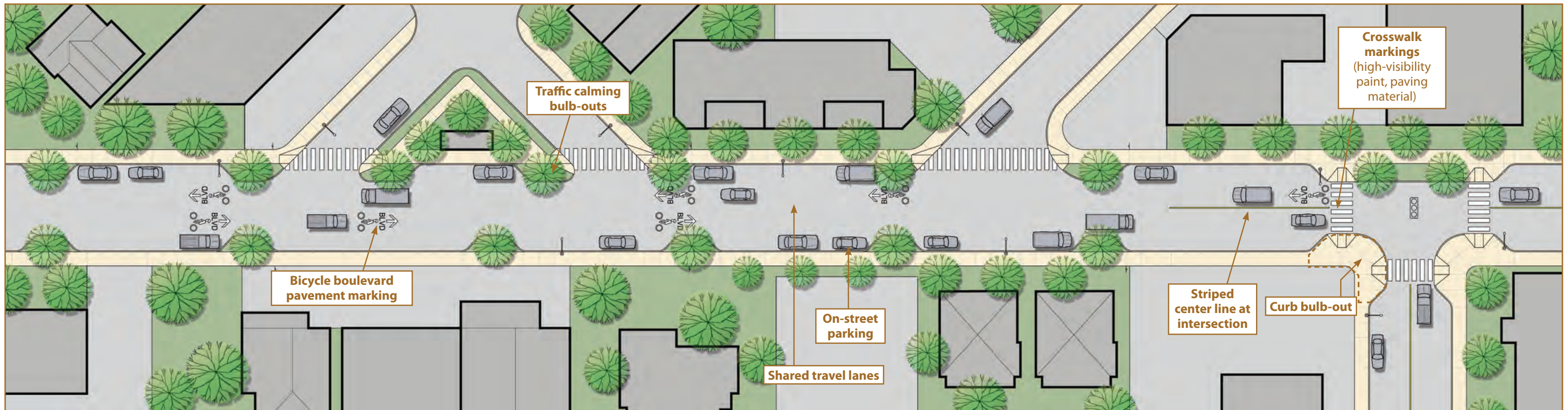


Figure 4.3.4.3-4. Bicycle Boulevard on Downtown Essential Streets

4 | RESIDENTIAL STREETS

Residential streets are low volume, low speed streets in Downtown's predominantly residential neighborhoods. These calm, walkable neighborhood streets emphasize pedestrian safety and serve not just as the beginning and end of residents' trips, but also as spaces for socializing, exercising, and play. Many residential streets are in one of the City's historic districts, adding a layer of San Antonio heritage and providing the opportunity to tell stories through the street's design elements. Serving predominantly single family neighborhoods, Residential streets are often abutted by homes that are set back some distance by a front yard, typically landscaped with grass and trees. Street widths vary, but most accommodate two-way travel with on-street parking. Lavaca and King William Streets are both prime examples of Residential streets.

PRIORITY FEATURES IN RESIDENTIAL STREETS

Narrow travel lanes: Narrow street widths help lower speed and contribute to safer Residential streets, while still allowing emergency vehicle access.

On-street parking: The parking lane buffers pedestrians from moving vehicles in the traveled way and also accommodates the parking needs of business customers. Residential streets may accommodate parallel parking on one, both, or alternating sides of the street.

ADA minimum clear zone: The clear zone must meet the minimum accessible design standards of the Americans with Disabilities Act (ADA) for two-way sidewalk travel, horizontally and vertically. For 2012, the minimums are 5 feet in width, and 80 inches in height.

Informal landscaping: Permanent landscape features help soften the physical environment, add visual interest for all users, buffer pedestrians from the traveled way, and make streets more comfortable by providing shade, slowing wind, and absorbing rainfall. On Residential streets, planting strips with lawn, shrubs, and street trees should match their adjacent property contexts, and passengers must be able to exit parked vehicles.

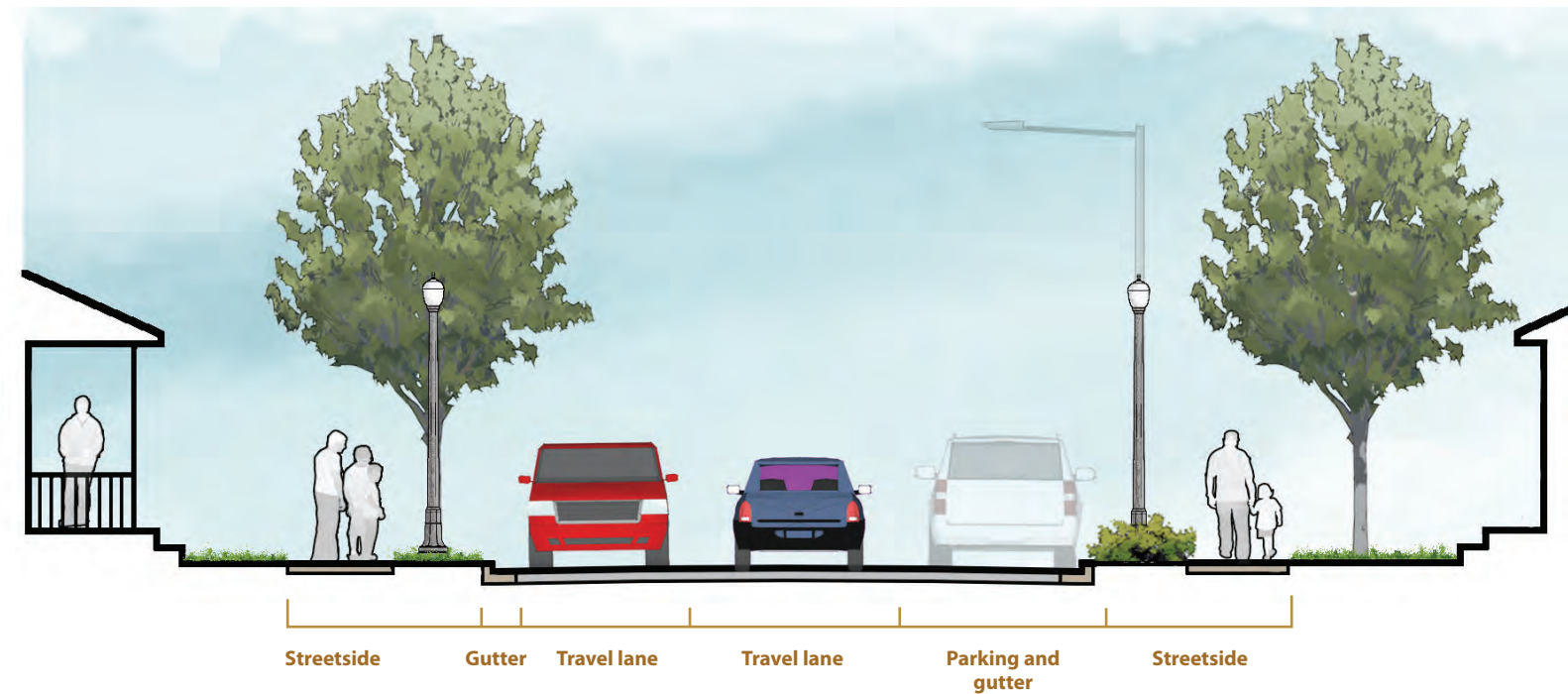


Figure 4-14 Typical Residential Cross-section

TYPICAL RIGHT-OF-WAY CROSS-SECTION AND PLAN

The typical Residential street right-of-way can accommodate one travel lane in each direction with on-street parallel parking on one side. These low volume streets with few truck and transit vehicles have narrower travel lanes and are lined with a planting strip for informal landscaping, including grass, shrubs, and trees.

DESIRED STREET CHARACTERISTICS IN RESIDENTIAL STREETS

Public Right-of-Way

- 2 lanes
- Two-way travel
- Street trees should be planted where not present in adjoining private property
- Curb cuts for private driveways
- Lighting located at longer intervals where present, emphasizing intersections, to minimize undesirable light on homes

Semi-Public Realm

- Buildings set back from right-of-way (10 - 30 feet)
- Setbacks along a given block face should be similar



Residential Street

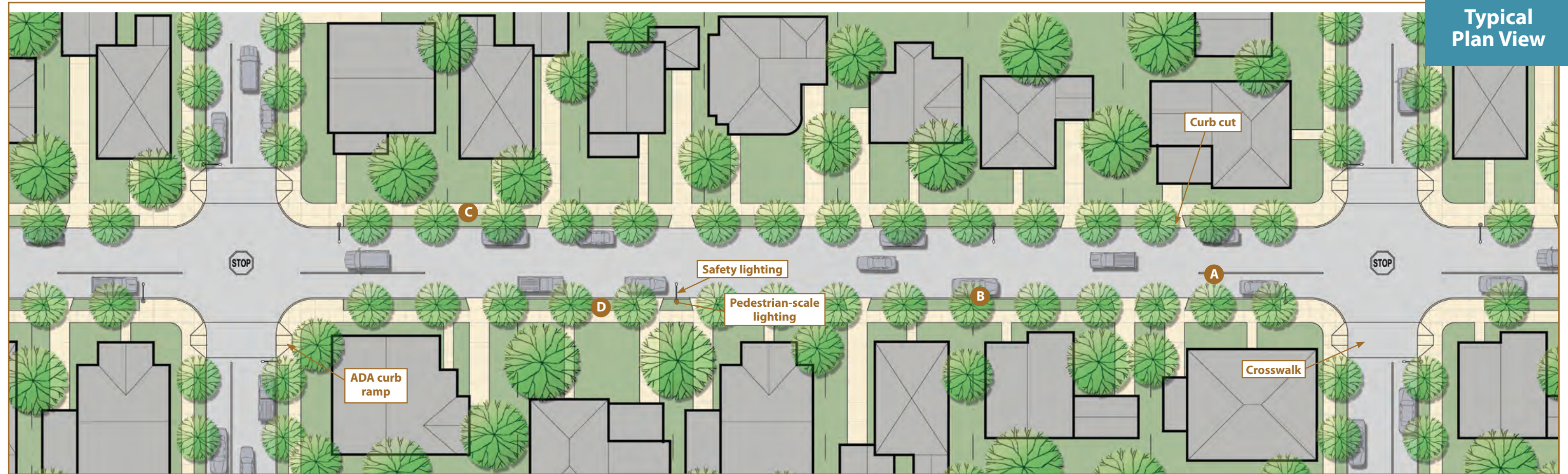


Figure 4-15 Typical Residential Street Plan



Narrow travel lanes



On-street parking



ADA minimum clear way
Source: Judy Babbitt



Informal landscaping

HISTORIC/STORY STREET

Many of Downtown San Antonio's Residential streets fall within a historic district. There may be opportunities to better reflect the historic heritage of these districts in the streetside and traveled way along these streets. A historic identity program would better highlight the City's rich heritage using historic properties markings, informational signage, map stations and kiosks, point-of-interest displays, and/or historic trail markers. These would reinforce the ongoing efforts of the Office of Historic Preservation.



Figure 4-16 Heritage Wayfinding and Signage Examples

YIELD STREET CONDITION

Although many Residential streets can accommodate two full traffic lanes, some have a narrower traveled way and functionally operate as "yield" streets – where two-way traffic must pass carefully, or alternate, in a single, flexible-direction travel lane. This condition is often found on typical right-of-way streets with parking on both sides. A yield street should not have a striped centerline.

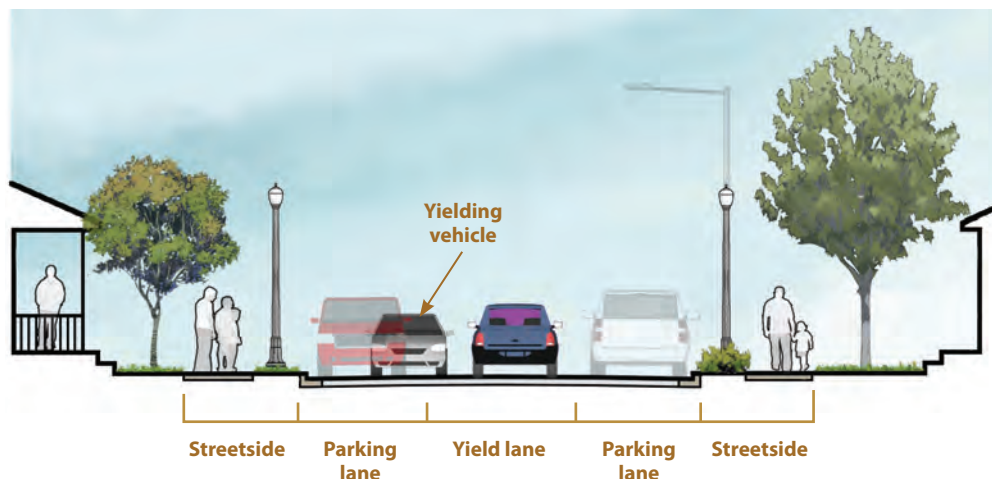


Figure 4-17 Yield Street Condition on Residential Streets

5 | PRINCIPAL ROUTE

Principal Routes are important high-volume corridors that enable access to and circulation within Downtown. These streets create the north-south and east-west connections that knit Downtown neighborhoods together and create vital links to areas beyond IH10, IH35, and IH37. Street design emphasizes corridor capacity, supported by elements that improve ease of navigation, particularly in the case of routes with multiple street names such as Martin / Pecan / 3rd / Houston.

Principal Routes serve numerous neighborhoods and contexts, and must accommodate higher traffic volumes without creating barriers to crossing that can isolate Downtown neighborhoods from one another. Their vehicle movement function must not hinder safe pedestrian movement. The design of Principal Routes should reflect and complement the diverse neighborhood contexts found along their lengths. Many of these streets, particularly in the core, must accommodate a high level of pedestrian traffic and economic activity along their sidewalks. César Chávez Boulevard, Frio Street, St. Mary's Street, Navarro Street, and McCullough Avenue are all Principal Routes.

PRIORITY FEATURES IN PRINCIPAL ROUTE STREETS

Route branding: Coordinated site furnishings, lamppost banners, streetside elements, and other branding elements (logos, colors, etc) give identity to long corridors crossing numerous neighborhood contexts.

Route clarity: Improved signage and a supplemental route naming system would aid navigation on numerous high-volume corridors traversing the Downtown study area. Signage would consolidate and integrate existing street, district and point-of-interest signs in order to improve ease of navigation. Route naming should supplement, not replace, well-known existing street names. New signage should reflect the route branding scheme.

Pedestrian intersection safety: Crossing numerous city contexts, these high-volume routes would benefit from additional pedestrian safety elements at intersections to facilitate crossings. Strategies such as high-visibility crosswalk markings, curb bulb-outs, median pedestrian refuges, and crossing signals can improve safety for pedestrians.

Pedestrian buffers: Increase pedestrian safety by adding buffers to the furnishings and edge zones of the streetside, including plantings, street trees, site furniture, and parking meters. Parked vehicles and bicycle facilities (buffered lanes, cycletracks) further separate moving vehicles from the streetside.

Raised median: On high-volume routes, a median can help improve safety, improve operational efficiency by managing access to side streets, and offers a place for landscaping and street trees, which is particularly valuable when dealing with constrained streetsides.

TYPICAL RIGHT-OF-WAY CROSS-SECTION AND PLAN

Given the variety of contexts that Principal Routes traverse, representative rights-of-way vary widely. The typical Principal Route right-of-way in the Downtown Core can accommodate two travel lanes in each direction, without on-street parking. A narrow median, including a pedestrian refuge area, can also be accommodated.

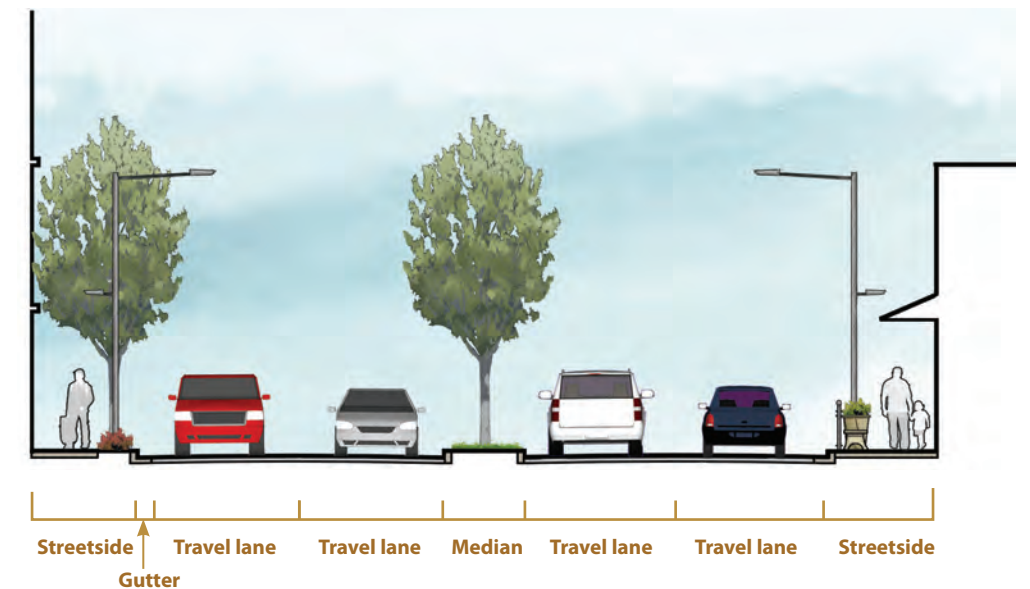


Figure 4-18 Typical Principal Route Cross-section

DESIRED STREET CHARACTERISTICS IN PRINCIPAL ROUTES

Public Right-of-Way

- 2 - 4 lanes
- Two-way travel
- Formal landscaping
- Informal landscaping

Semi-Public Realm

- Varies based on surrounding context

DTS Basic Street Types

5

PRINCIPAL ROUTE

Typical Cross Section

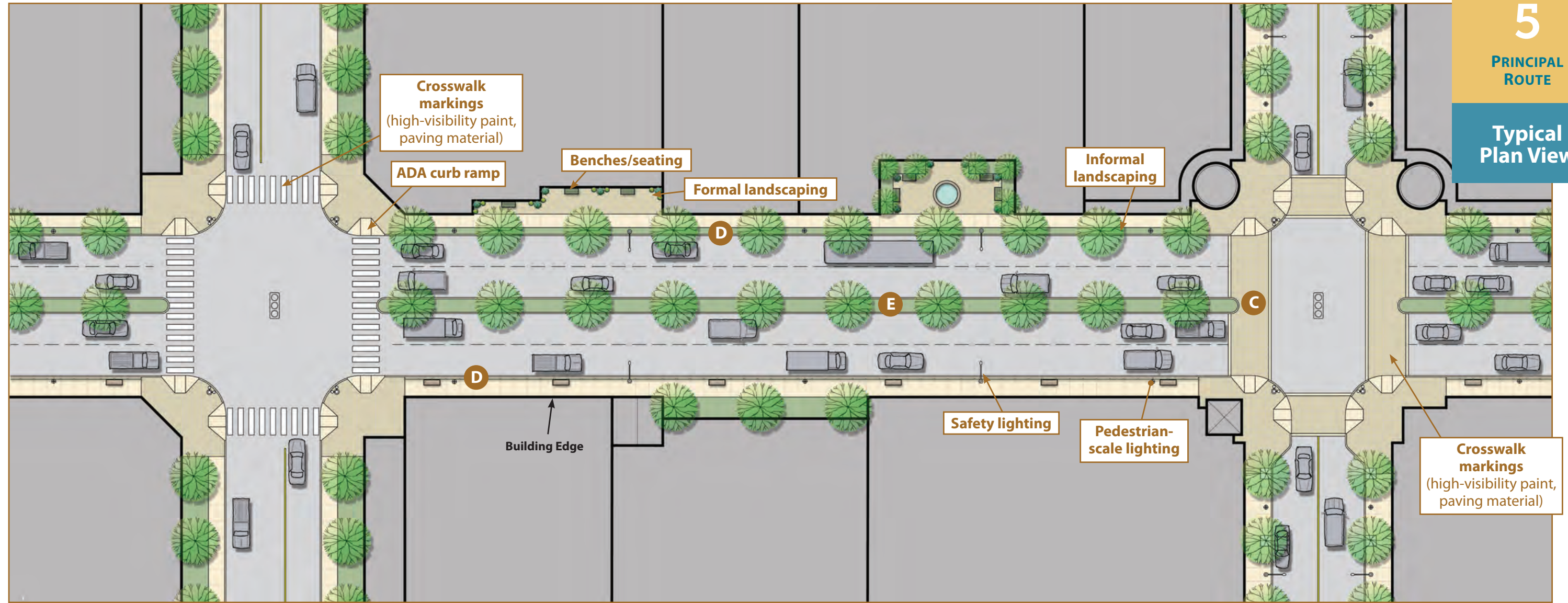


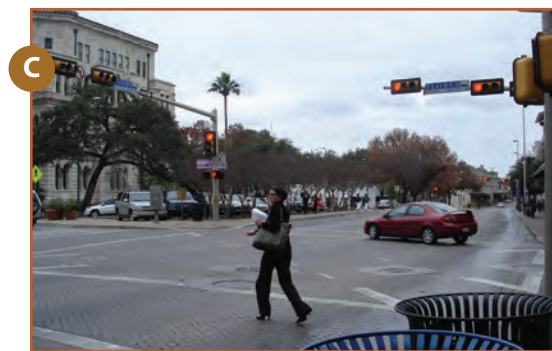
Figure 4-19 Typical Principal Route Plan



Route branding



Route clarity



Pedestrian intersection safety



Pedestrian buffers



Raised median

PRINCIPAL ROUTE, CONTINUED

BICYCLE FACILITIES

Although not every Principal Route can dedicate a portion of the traveled way for bicycles; streets with wider rights-of-way can accommodate specialized facilities that provide greater separation between vehicle and bicycle traffic to increase safety.

■ Buffered Bicycle Lane:

A bicycle lane is located adjacent to the curb and gutter and is separated from vehicle traffic by a 3' buffer. The minimum right-of-way for this arrangement (74') does not allow for on-street parking or a median.

■ Cycletrack:

A bicycle lane is located adjacent to the curb and gutter and is separated from vehicle traffic by a 3' door buffer and parallel parking. The minimum right of way (90') does not accommodate a median.

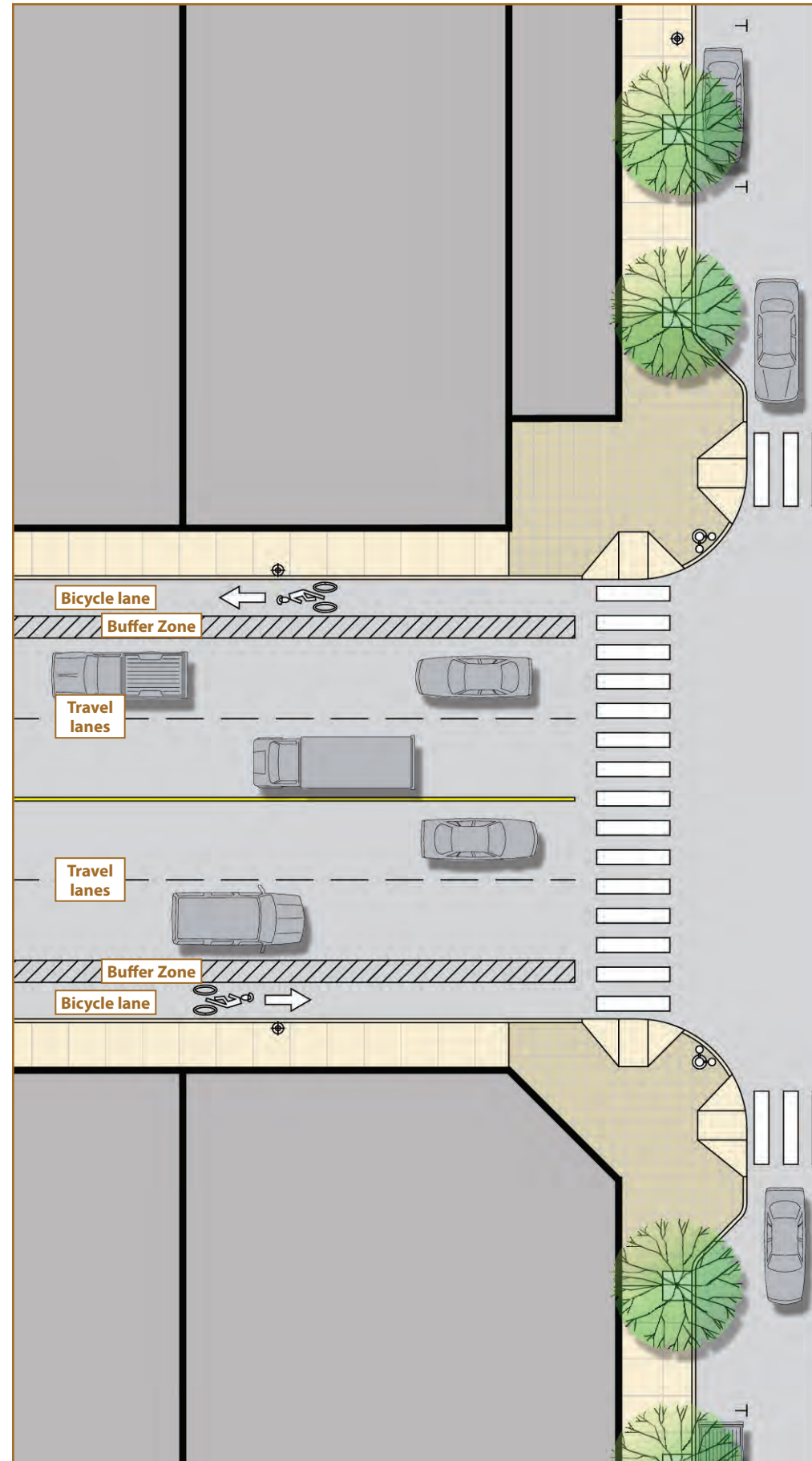


Figure 4-20 Buffered Bicycle Lane on Principal Routes

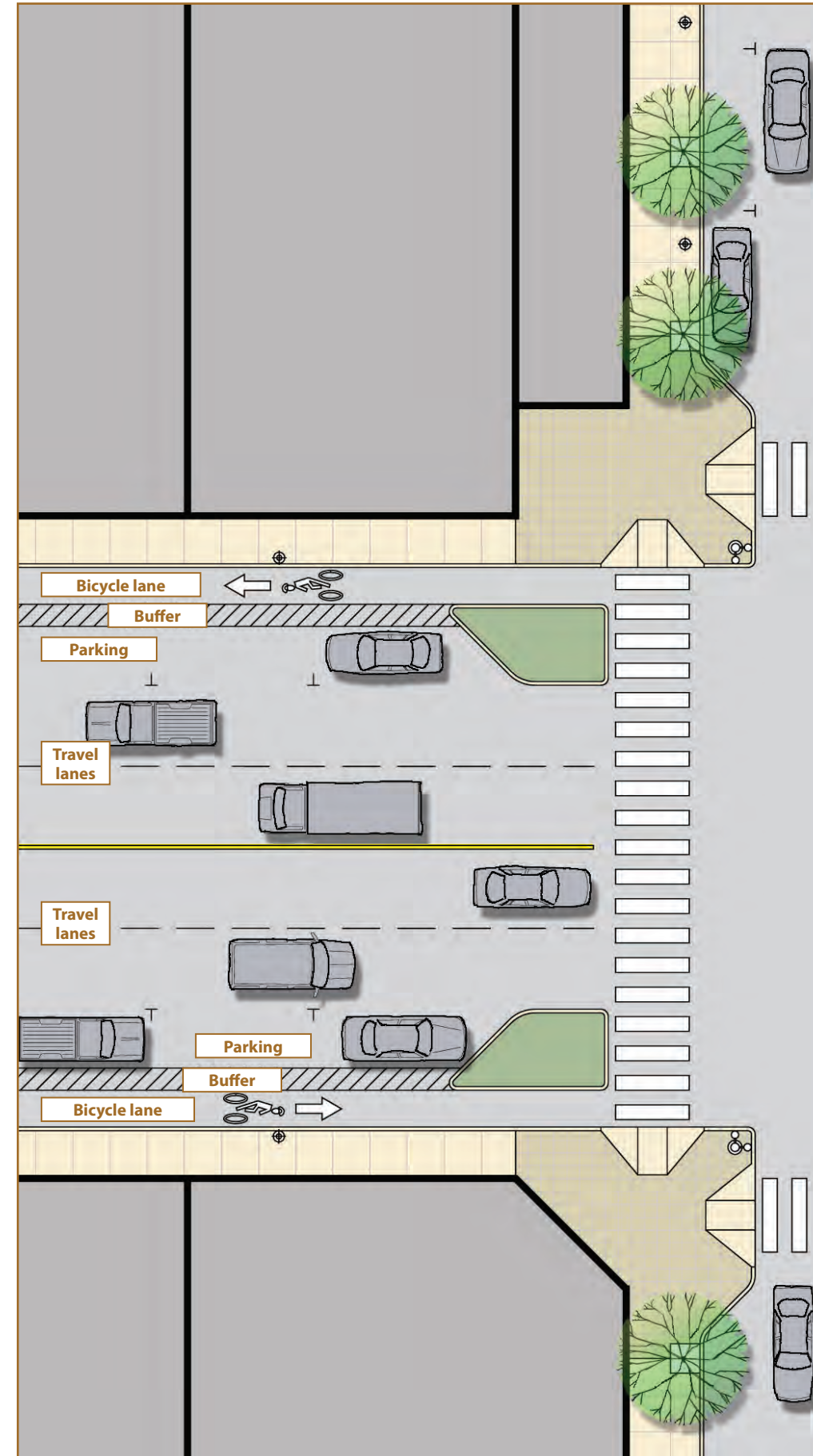


Figure 4-21 Cycletrack on Principal Routes

BEYOND THE BASICS: TAILORING DESIGNS TO UNIQUE CONTEXTS

The basic street types establish the fundamental design objectives for each street in Downtown San Antonio. Three approaches provide better-tailored guidance for unique on-the-ground conditions: Design Overlays, Innovation Opportunities, and Special Streets.

DESIGN OVERLAYS

Design Overlays build on the basic street types, providing additional guidance in specific locations. The Overlays augment a street's basic type designation. Each overlay addresses different elements of the street's design and potentially impacts both the streetside and the traveled way. The result can be unique street designs that distinguish Downtown places, recognize specialized functions on selected segments or corridors, and provide facilities for multiple user groups.

Examples of Design Overlays include:

Bicycle: Establish bicycle facilities on roadways and at intersections, including lane markings and signage, buffer distance, and protected stopping areas.

Transit: Allocate street right-of-way to transit vehicle stops, including boarding area, passenger waiting area/shelter, site furniture, and landscaping.

Distinctive Districts: Create cohesive identities for Downtown districts that share public parking, branding, or design features.

Heritage/Story Streets: Incorporate historic design elements and information into street furnishings, wayfinding, and interpretive information.

Sample overlays are illustrated as part of the basic street type descriptions. Additional overlays may be designated and designed as necessary. Appropriate overlays arise from specific needs or objectives, and design guidance should consider the impact on street, when and where the overlay applies, and how the overlay's tailored recommendations reflect the basic type's priority features and design emphasis.

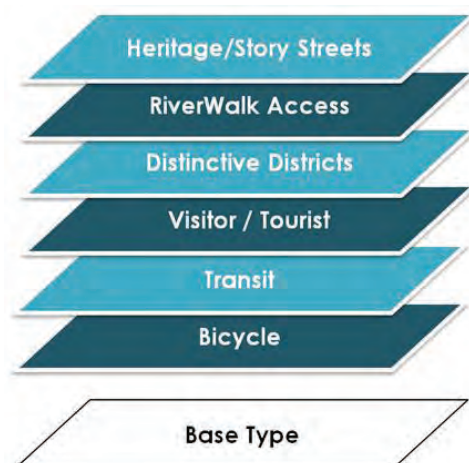


Figure 4-22 Design Overlay Examples

ADVANCING TRANSPORTATION INNOVATION OPPORTUNITIES

Opportunities represent both traditional and innovative techniques to address unique issues across the study area, from navigation to landscaping and operations to techniques for expanding the streetside. This list of opportunities, while not exhaustive, represents a sample of techniques that can be utilized independently or combined with other improvements while reconstructing or otherwise improving Downtown streets.

Reallocating Traveled Way Space to Achieve Complete Streets

The constrained right-of-way and streetside make it difficult to build truly 'complete' streets that accommodate all appropriate users. To address this, one strategy is to reduce larger Downtown streets from four lanes to three, providing two travel lanes and one center turn lane. The reallocated right-of-way width can be used for on-street parking, wider sidewalks, bicycle facilities, or other facilities, as appropriate for the context.



Figure 4-23
Example of Reallocating Right-of-Way
to Achieve a Complete Street

Expanding the Streetside Without Moving the Curb

For many Downtown streets, limited right-of-way and capacity, as well as high cost, make reconstructing streets and moving curb lines to reallocate space between the traveled way and streetside unrealistic in the short term. However, there are a variety of ways to expand the streetside without the expense of moving the curb. These include:

Technique 1: Seasonal use of parking lane for café seating.

Technique 2: Construct discontinuous sidewalk adjacent to existing gutter.

Technique 3: Permanent or temporary "parklet"



Figure 4-24
Example of Expanding the
Streetside without Moving the Curb

Urban Design in Branding Districts and Special Streets

One strategy used by many cities to help unify districts and corridors is a coordinated branding and urban design program to provide visual cues and wayfinding to users. This strategy is not new to San Antonio. Greater use of a coordinated branding program would bring greater definition to streets and important routes that lack branded identity programs, while integrating and simplifying existing programs. Not only would coordinated signage, banners, logos, and furniture ease navigation, but such improvements could also provide more cohesive identity to Downtown districts as they continue to evolve (such as River North) or highlight their attractions (such as historic districts like King William or Lavaca).

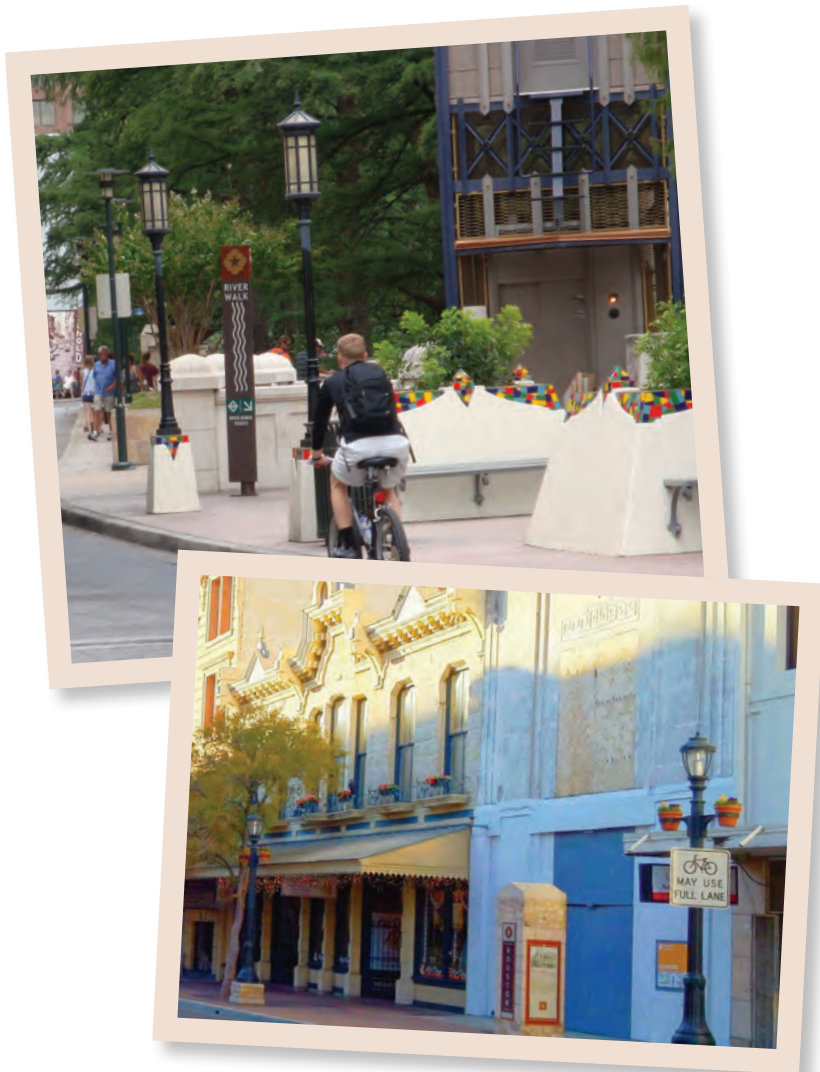


Figure 4-25
District and Special Street Branding Examples

Creating Public Space and Improving Safety through Reconfiguration of Complex Intersections

Due to San Antonio's history, a variety of complex intersections exist where streets split into one-way couplets, such as at Commerce, Losoya, and Alamo Streets, or where different street grids intersect, such as at Main Avenue, San Pedro Avenue, and Navarro Street. Today, these intersections may be able to be simplified and create additional space for the public. By simplifying vehicle movement, these intersections would be safer for both vehicles and pedestrians, while also providing additional public benefit.



Figure 4-26
Examples of Creating Public Space and Improving Safety Through Reconfiguration of Complex Intersections

Managing Traffic Speed on Principal Routes

While high traffic volume capacity is a priority feature for Principal Routes, high speeds are not. Speeds through the Downtown study area should be moderate to improve pedestrian safety and reduce vehicle collision severity. This is especially true in areas with retail frontage or near visitor destinations. A variety of techniques tailored to larger streets can help reduce speeds on Principal Routes:

Managing Traffic Speed on Principal Routes	
Active Measures	Passive Measures
<ul style="list-style-type: none"> Roundabouts Narrowed travel lanes Right-sizing (reducing number of travel lanes) Lateral shifts or narrowing (using curb extensions with a center island to shift the travel path) Smaller curb radii and removal of channelized right-turn lanes Raised crosswalks On-street parking adjacent to commercial land uses Speed cushions or speed platforms Speed actuated traffic signals (triggered by excessive speeds) 	<ul style="list-style-type: none"> Synchronized signals to promote appropriate speeds Radar speed read-out signs and speed enforcement Variable speed limit signage based on conditions Visual techniques Narrow pavement markings Enclose street with buildings, street trees Flashing beacons on intersection approaches Automated speed enforcement at traffic signals

Source: Daisa, J. et al. "Designing Walkable Urban Thoroughfares: A Context Sensitive Approach." Institute of Transportation Engineers. Washington, DC, 2010.

Buffering Pedestrians on Narrow Streetsides

Many Downtown streets have narrow streetside zones that put pedestrians too close to moving vehicles in the traveled way. A number of strategies may be employed to improve safety and promote pedestrian activity, including:

- Scenario 1:** Bollards or metal fencing in narrow planting strip adjacent to curb, including low planting or vines on barrier
- Scenario 2:** Narrow planting strip with closely spaced, narrowly-trimmed trees
- Scenario 3:** On-street parking with tree planters in parking lane
- Scenario 4:** Use of on-street parking, bike lanes, and/or buffer zones marked on pavement to create distance between pedestrians and traffic



Figure 4-27 Examples of Pedestrian Buffer Options in Narrow Streetsides

Stormwater Management/Green Streets

When reconstructing or reconfiguring streets, there is an opportunity to install green infrastructure that can help manage and remediate stormwater using natural processes, rather than mechanical treatment. Using existing and implementing new softscape and pervious surfaces, from street trees and pervious pavers to rain gardens and retention ponds, San Antonio can both beautify Downtown streets and benefit from natural processes. Examples of stormwater management can be found in Section 4, pages 26 - 27.

Improving Emergency Response on Narrow Streets

Fire departments are charged with very important life-saving responsibilities for which they require the use of fire engines and trucks. These are unwieldy vehicles and it can be difficult to maneuver them in tight spaces to access homes and buildings requiring emergency response. Streets with limited right-of-way, and competing priorities for their use make it difficult to create wide spaces for fire department vehicles. The City's Fire Department should participate in identifying viable access routes throughout neighborhoods with particularly narrow streets. As a complementary strategy, the City may explore the option of requiring new or remodeled buildings to be constructed with built-in sprinklers that may reduce the risk of fire. In addition, when planning and designing narrow streets, staging locations for firefighting should be set aside at key locations next to fire hydrants. Parking should be prohibited in these areas to ensure consistent access to the fire hydrants. With these measures, narrow streets in Downtown San Antonio can provide great spaces for transportation and street life while also providing emergency access.



Figure 4-28 Example of Life Safety Features on Narrow Streets

Special Streets

By definition, Special Streets are "one of a kind" streets that, due to their unique set of users, physical conditions, and city context, do not fit neatly into one of the street types and require unique design solutions. Special Streets may symbolize or exemplify certain values, history, or places that San Antonio residents hold dear, such as Alamo Plaza. They might represent streets that people like to visit over and over again, resulting from a combination of the feel of the street and the adjacent land use or features, such as a table outdoors at a favorite restaurant. They may be streets with unique function or operation that influence the design and construction of nearly every aspect of the street, such as Market and Commerce Streets, or a streetcar corridor. The River Walk can be thought of as a special pedestrian street that depends on unique conditions and that has overcome particular constraints in order to be successful.

In San Antonio and beyond, a city's most well-known or iconic streets often fall into the Special Streets category. Across the country and the world, famous streets such as the National Mall in Washington DC and the Champs-Élysées in Paris, are monumental, ceremonial, or otherwise unique in function and character. Special character is often highly valued, and should not be diminished through duplication of design elsewhere. As a result, the design of these streets should not be generalized. Future changes to Special Streets should take place through focused design processes, with citizens taking ownership and pride in the results.

When changes or improvements to Special Streets are made, a wide range of issues must be considered, including:

- **Attractions and destinations:** what activities draw which users, and when?
- **Identity, image, and use:** what is the function of the street locally and for the larger community?
- **Management and flexibility:** who maintains the streetside and traveled way, and how do users change over the day and season?
- **Amenities and facilities:** what are the necessary elements in the streetside and traveled way to accommodate the street's particular function?
- **Local context:** what elements from adjacent neighborhoods should be preserved or enhanced?

DESIGN GUIDANCE

This section outlines detailed design specifications for each street type. An overview matrix describes the design features and priorities of each type, while a detailed specifications table provides dimensions for a typical right-of-way for each street type, as well as select condition and overlay dimensions.

GENERAL DESIGN SPECIFICATIONS

Table 4-2 provides a description of each street type and outlines its priority features and design elements.

Table 4-2 Street Type Design Priorities and Features					
	Downtown Activity	Downtown Lifestyle	Downtown Essential	Residential	Principal Route
Description	Safe, comfortable pedestrian realm for accessing the core's mix of uses and activities	Safe, comfortable access to local and surrounding destinations for autos and pedestrians	Medium volume street surrounded by a mix of land uses, including industrial, distribution, services, and housing	Quiet, walkable, neighborhood street	High volume corridor for accessing Downtown
Design emphasis	Pedestrian movement, facilities, and adjoining economic activity	Lively public space compatible with a variety of adjacent uses, including urban residential	Pedestrian safety and accommodation of a mix of vehicles (buses, trucks, cars, and bikes)	Low traffic, low speed, and pedestrian safety	Corridor capacity, route clarity, and pedestrian safety
Where can I find it?	Downtown Core	Predominantly multi-family residential zones, particularly high change, mixed-use areas	Generally at the intersection of neighborhoods and around highway network	Stable, predominantly single family neighborhoods	Connecting major destinations within and outside the Downtown
Example Streets	Houston, Travis, Main	Josephine, Avenue B, Labor., Alamo (NE of 3rd)	Cherry, Chestnut, Probandt	Lavaca, King, William	César Chávez, Frio, St. Mary's, Navarro, McCullough, Martin/ Pecan/3rd/ Houston

	Downtown Activity	Downtown Lifestyle	Downtown Essential	Residential	Principal Route
Priority Features					
	Ample streetside	Pedestrian buffers	ADA min. clear way	Narrow travel lanes	Route branding
	On-street parking	"Flex Zone"	Pedestrian buffers	On-street parking	Route clarity
	"Flex Zone"	Expanded street-side	Accommodate larger vehicles	ADA min. clear way	Pedestrian intersection safety
	Well-defined edges	Formal landscaping	Informal landscaping	Informal landscaping	Formal landscaping
	Pedestrian buffers	Informal landscaping			Informal landscaping
	Pedestrian lighting	Pedestrian lighting			Pedestrian buffers
	Formal landscaping	Well-defined edges			Raised median
		Bulb-outs			
Circulation and Accessibility					
Local destinations	High	Moderate	Moderate	Low	High
Other Downtown dest.	High	Moderate	Moderate	Low	High
Regional Destinations	Moderate	Moderate	High	Low	High
Travel Priority					
Mode(s)	Walk, bicycle	Walk, bicycle, transit	Auto, walk	Walk, auto	Auto, transit
Speed	Low	Low	Low	Low	Moderate
Transfer Opportunities	High	Moderate	Low	Low	High
Design Features					
Traveled Way					
Travel Lanes (total)	2	2	2	2	4
Direction	One or two-way	Two-way	Two-way	Two-way	Two-way
Parking	2 sides parallel/angle	2 sides parallel	2 sides parallel	2 sides parallel	Where possible
Bicycle facilities	Lanes, sharrows	Lanes, sharrows	Where possible	Sharrow	Where possible
Median	No	No	No	No	Where possible
Special paving material	Yes	Optional	No	No	No
Streetside					
Pedestrian buffers	Yes	Yes	With residential uses	Yes	Yes
Identity and branding	Yes	Yes	No	In Historic Districts	Yes
Lighting	Distinctive	Distinctive	Conventional	Distinctive in Historic	Conventional
Wayfinding need	High	Moderate	Moderate	Low	High
Curb cuts	Few	Occasional	Many	Many	Few
Site furnishings	Yes	Yes	With residential uses	No	Yes
Landscape					
Planting strip	Yes	Yes	Where possible	Optional	Where possible
Street trees	Yes	Yes	Where possible	Where possible	Where possible
Stormwater rem.	Yes	Yes	Where possible	No additional	Yes
Intersections					
Curb extensions	Yes	Yes	No	No	Optional
Crosswalks	High-visibility	High-visibility	Standard	Standard	High-visibility

GENERAL DESIGN SPECIFICATIONS, CONTINUED

Figure 4-29 provides an overview of the design value ranges for each street type, and Figure 4-30 provides detailed specifications for how to allocate right-of-way space for each type.

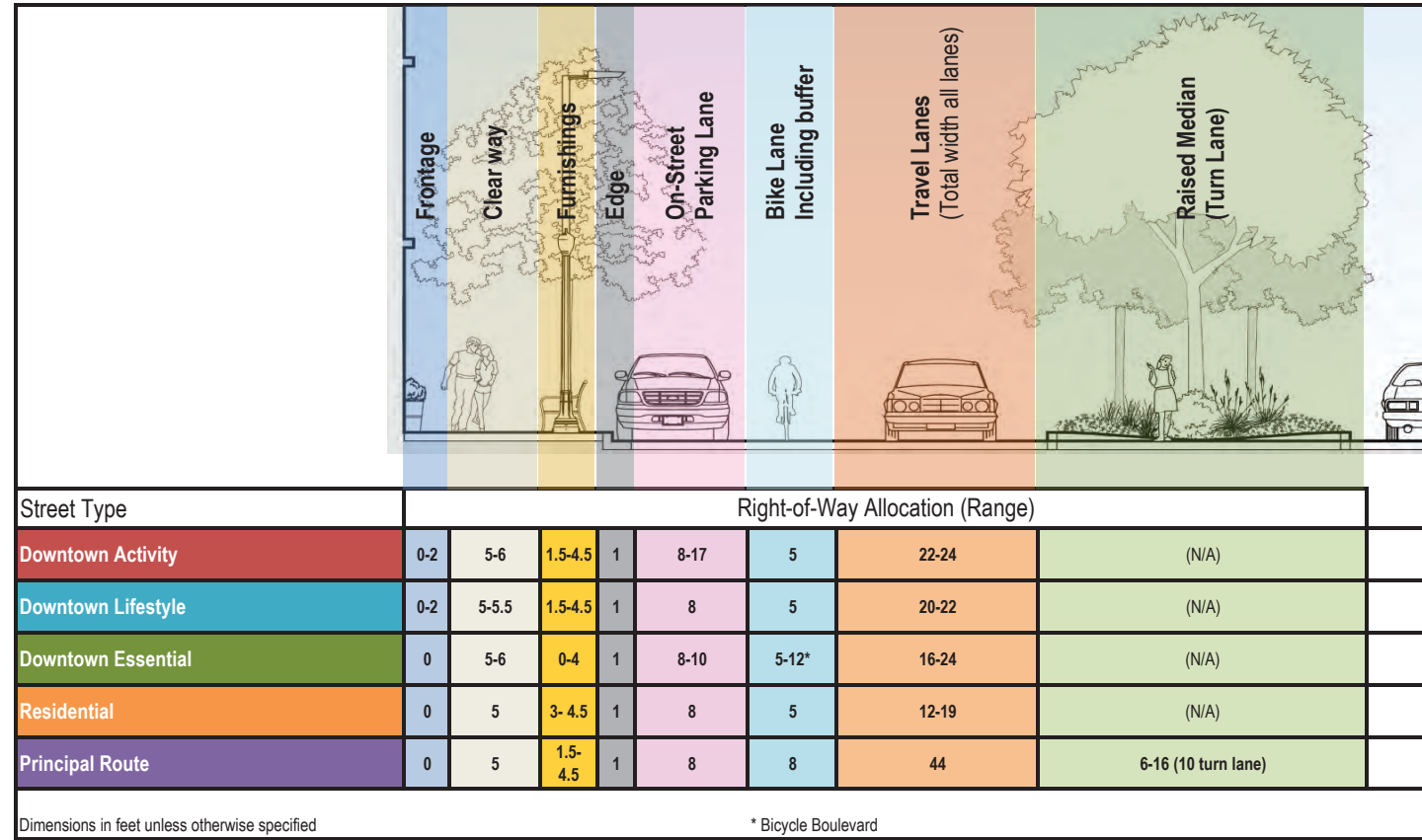


Figure 4-29 Street Type Design Specifications Overview

	Right-of-Way (ROW)	ROW Width (Feet)	Traveled Way Width (Feet)							Streetside Width (Feet)					
			Curb and Gutter*	Parking Lane Width (Feet)	Bicycle Facility Type and Width (Feet)	Travel Lanes	Median	Transit Facilities	Total Width	Streetside Width (one side)	Frontage	Clear Way	Furnishings + Edge	Total Width (both sides)	
Downtown Activity	1. Typical Cross-Section (Two Lane Street with Typical Width)	60'	1' gutter	8' parallel each side	-	11' lane width; 22' total	-	-	38'	14' / 8'	2' / 0'	6' / 5'	6' / 3' combined		22'
	2. Typical Plan with Intersection (Two Lane Street with Typical Width)	60'	(See above)							(See above)					
	3. Overlay: Transit Street (Two Lane Street with Typical Width)	60'	1' gutter	8' Parallel One side opposite bus stop	-	12' lane width; 24' total	-	Bus stop per VIA guidelines	33'	15' Adjacent to bus stop; 12' opposite side	2' / 1'	6' / 5'	7' (incl. bus stop amenities) / 4.5'	Incl. in bus stop / 1.5'	27'
	4. Condition: One-Way Street OPTION 1: Head-In Angled Parking	74'	1' gutter	8' parallel left side; 17' 45-degree head in angled right side	5' Class II lane adjacent to parallel parking on left side	10' lane width; 20' total	-	-	50'	12'	1'	6'	5' combined		24'
	5. Condition: One-Way Street OPTION 2: Back-In Angled Parking	74'	1' gutter	8' parallel right side; 17' 45-degree back in angled left side	5' Class II lane adjacent to angled parking on left side	10' lane width; 20' total	-	-	50'	12'	1'	6'	5' combined		24'
Downtown Lifestyle	1. Typical Cross-Section (Two Lane Street with Typical Width)	54'	1' gutter	8' Parallel each side	-	10' lane width; 20' total	-	-	36'	9'	0'	5'	4' combined		18'
	2. Typical Plan with Intersection (Two Lane Street with Typical Width)	54'	(See above)							(See above)					
	3. Overlay: Bicycle Facilities (Marked Bike Lanes and Sharrows on Two-Lane Street)	65'	1' gutter	8' Parallel each side	5' Class II bike lane in one direction; sharrows in the center of the travel lane in other direction	11' lane width 22' total	-	-	43'	11'	0'	5.5'	4'	1.5'	22'
Downtown Essential	1. Typical Cross-Section (Two Lane Street with Typical Width)	48'	1' gutter	10' parallel parking/shoulder (alternating sides)	-	12' lane / 13' lane without parking; 25' total	-	-	36'	6'	6' combined				12'
	2. Typical Plan with Intersection (Two Lane Street with Typical Width)	48'	(See above)							(See above)					
	3. Condition: Hybrid Facing Land Uses (Two Lane Street with Typical Width)	48'	1' gutter	8' parallel on residential side; no parking on other side	-	11' lane width on residential side; 12' lane width on other side	-	-	32'	9.5' on residential side / 6.5' monolithic on other side	0' / 0'	5' / 6'	4' planting strip / 0'	0.5' curb only	16'
	4. Overlay: Bicycle Boulevard (Presa Street from Pereida to Alamo Street per San Antonio Bike Plan 2011)	54'	1' gutter	8' parallel each side	Full lane BB markings in both directions, plus BB signage	12' lane width; 24' total	-	-	40'	7'				14'	
Residential	1. Typical Cross-Section (Two Lane Street with Typical Width)	48'	1' gutter	8' parallel one side	-	9.5' lane width; 19' total	-	-	28'	10'	0'	5'	4.5' planting strip	0.5' curb only	20'
	2. Typical Plan with Intersection (Two Lane Street with Typical Width)	48'	(See above)							(See above)					
	3. Overlay: Historic/Story Street	(N/A)	(N/A)							(N/A)					
	4. Condition: Yield Street (Two-Way Residential Street)	46'	1' gutter	8' parallel each side	-	12' unstriped travel lane	-	-	28'	9'	0'	5'	3.5' continuous planting strip, or small treewells	0.5' Curb only	18'
Principal Route	1. Typical Cross-Section (Four-lane Divided Street)	68'	1' gutter	None	-	11' lane width; 44' total	6' (min.) for ped. refuge	-	52'	8'	0	5'	3' combined		16'
	2. Typical Plan with Intersection (Four-lane Divided Street)	68'	(See above)							(See above)					
	3. Overlay: Buffered Bike Lanes	74'	1' gutter	Buffered Bike Lane 5' bike lane adjacent to curb, each side 3' buffer from travel lanes, each side 11' travel lanes (four lanes; 44' total) No median			-	-	60'	7'	0'	5'	2' combined		14'
	4. Overlay: Cycletrack	90'	1' gutter	Cycletrack 5' bike lane adjacent to curb, each side 3' door opening buffer, each side 8' parallel parking, each side 11' travel lanes (four lanes; 44' total)			-	-	76'	7'	0'	5'	2' combined		14'

* Curb and gutter included in parking lane width, if present.

Figure 4-30 Detailed Street Design Specifications

DESIGNING IN A CONSTRAINED RIGHT-OF-WAY

Space is limited on Downtown San Antonio's streets. Public rights-of-way are generally between existing homes or buildings making street widening infeasible. As streets are updated in Downtown, the community will need to make some tough choices between competing priorities. **Table 4-1** provides a framework for that prioritization. In the Travel Priority row, the modes given priority for each street type are listed. For example, on a Residential Street, walk and auto are the priority modes, and travel speed is expected to be low. Within constrained right-of-way, sidewalks and other features associated with pedestrian safety will have priority over bike lanes or on-street parking. However, the emphasis on walk comfort means that in the absence of on-street parking (7-8 feet of street width) there will be a continued need for a buffer between pedestrians and travel lanes, which might be accommodated by a landscape buffer in a narrower strip of right-of-way. Slow speeds and limited truck traffic on residential streets mean the narrowest travel lane dimensions can be applied, and the infrequent delivery truck or moving van can be allowed to encroach into the opposing lane during turning movements.

In contrast, on a Principal Route, the priorities are passenger vehicles and transit vehicles. In this case, a constrained right-of-way would prioritize wider travel lanes and space for bus loading zones over more expansive pedestrian facilities, although basic sidewalk facilities should always be provided.

ADDITIONAL CONSIDERATIONS DURING THE DESIGN PROCESS

Designing streets in a downtown setting can have challenges associated with operations and physical constraints that are not encountered in other areas of the City. The following discussions identify elements that should be considered as individual projects move through the detailed design process.

Valet Parking

Downtown businesses must sometimes provide valet service for patrons. Examples of such businesses are hotels, restaurants and event venues such as theaters and auditoriums. Depending on the specific use, the demand for the valet parking can result in a significant queue of patron's vehicles blocking through traffic on the street. Operational requirements can be implemented by the City to reduce the likelihood of this occurring, such as, a minimum number of valets required during peak arrival and departure times and location of valet parking near enough to the site to minimize the valet travel time. The requirements should reflect the type of business and the demand that occurs during peak valet times.

Design options that can be considered during street improvement projects consist of incorporating loading/unloading or staging space into the area abutting the business. Ideally the loading/unloading space would be inset and of sufficient length to accommodate a reasonable queue of vehicles. Limited right-of-way, a common issue in Downtown, may not allow for a staging area directly in front of the building's entrance. Other options include incorporating the space on a nearby sidestreet

within easy walking distance or allowing the adjacent travel lane of the roadway to be temporarily coned off during arrival and departure times. This is not feasible if the street has only one lane in each direction. With new construction, the valet staging or loading/unloading zones should be located on-site wherever possible, requiring limited use of the public right-of-way. When located on-street, the loading/unloading or staging space can serve parking when not being used.

Signage in Downtowns

Clear and consistent signing in the Downtown area is necessary to convey important information to unfamiliar drivers, and wayfinding and branding signs can identify and delineate the Downtown area. Development of a guidance manual for signing in Downtown can help establish practices for minimizing sign clutter and for maintaining an identified aesthetic. The guidance manual for signing in Downtown should comply with the most current version of the Texas Manual on Uniform Traffic Control (TMUTCD). All sign sizes, spacing, and placement should be in accordance with the TMUTCD and should be applied consistently throughout the Downtown area.

Short blocks, one-way streets, and a large number of destinations within the Downtown area result in significant signage needs. This can create sign clutter and overload drivers with information if the signing layout is not carefully planned. Because the Downtown attracts a large number of tourists and people not familiar with the area, too much signing information in one location can cause driver confusion and frustration. Judgment should be used to determine an appropriate amount of signing information at intersections. If the number of signs at an intersection may cause confusion, relocating non-essential signs (such as wayfinding signs) away from the intersection should be considered.

The Downtown bicycle network is expected to expand in the future, and signing for bicyclists will become increasingly important. Not all Downtown streets will have bicycle facilities, so signing is necessary to designate the facilities and guide bicyclists to them. The primary bike signs are the bike lane and bike route signs, and these should be placed on every street that has bike lanes or is identified as a signed route. Additional directional plaques can be mounted below the bike route signs to identify where a signed route continues on another street. Bicycle wayfinding signs can also be used to direct bicyclists to destinations, which is especially important when the bicycle facilities do not provide a direct path to a destination. Where bikes travel in a shared lane with vehicles, "Share the Road" signs may also be appropriate. As additional bike facilities are constructed in Downtown, the route and wayfinding signs should be updated to reflect the new connectivity. Guidance on bike signs can be found in the TMUTCD and the NACTO Urban Bikeway Design Guide.

The Downtown Transportation Study identifies the need for improved wayfinding within Downtown. The Downtown road network contains one-way streets and alignment shifts which can make navigation to the many major destinations within Downtown difficult. Improved wayfinding signage can help drivers find their destinations and feel more confident in their route. In general, the wayfinding signs should be simple and concise so drivers can quickly identify what route they need to take. The sign text should be of a suitable height and font so that it is clearly visible to

drivers. Smaller signs can also be installed to aid pedestrian wayfinding. Guidance for wayfinding signs can be found in Section 2D.50 (Community Wayfinding Signs) of the 2011 TMUTCD. The TMUTCD recommends wayfinding signs be simple and of uniform design and no more than three destinations should be shown per sign. The wayfinding sign should not conflict with any higher priority signs such as warning or regulatory signs.

Route branding is identified as a treatment for Principal Routes in the Downtown Transportation Study. The branding will help identify the major corridors. This can range from a supplemental sign under the street name to a special streetscaping treatment for the corridor. If branding signs are used, they should be of similar size and mounted in similar locations so they are recognizable as branding signs.



Downtown Signage

Commercial & Residential Loading/Unloading

The density of businesses located in Downtown is such that the space allocated for required operations such as garbage pick-up, deliveries, pick-up of products, etc. is very challenging. Higher density residential properties experience similar challenges including visitor parking, passenger loading/unloading and space for large deliveries or moving trucks. As street improvement projects are designed, consideration should be given to incorporating commercial loading/unloading zones at reasonable spacing along streets with demand for such. The zones can occupy on-street parking spaces during specified times of day when they serve as loading/unloading zones. The remainder of the day, the spaces can be used for short-term parking. This method is often referred to as “flex zones.”

Tour Bus Access & Parking

San Antonio is known for its popularity and success as a tourist destination. Along with that success comes some associated operation challenges. Tour buses are a frequent sight in Downtown San Antonio, but the drivers face challenges reaching destinations and finding suitable locations to pick-up and drop-off passengers within an acceptable walking distance. In between picking up and dropping off passengers, tour bus drivers must locate a place to park and wait. Overnight parking is also needed.

As redevelopment in Downtown occurs, consideration should be given to identifying locations for daytime and overnight tour bus parking in support of the tourism industry. Parking garages usually have vertical height limits that exclude buses. Future bus parking areas would need to be on-street or in surface parking lots.

During the design process for street improvement projects, consideration should be given to incorporating bus loading/unloading zones at high demand locations. Curb radii should be designed to accommodate the bus turning radius where the presence of tour buses is expected.

Low Impact Development (LID) Treatments for Downtown Streets

Water conservation is extremely important in San Antonio and efforts to reduce demand, treat and reuse water are becoming more familiar in design of roadways and new developments. As street improvement projects are moved through the design process, consideration should be given to incorporate low impact development treatments wherever possible. **The following examples of treatments are identified based on specific Street Types.**

Traffic Circles / Medians

Traffic circles or roundabouts, when designed to allow water to drain to the center island, can collect and infiltrate stormwater that flows through intersections. The bioretention area within the center island can promote vegetation, reduce stormwater volumes, and filter non-point source pollutants. The intersection grading should be designed carefully to direct stormwater into the center island.



Figure 4-39
Traffic circle used to capture street runoff, Tucson AZ. Photo and text courtesy of Watershed Management Group. <http://www.watershedmg.org/green-streets>



Figure 4-40
Traffic circle as neighborhood enhancement and rain garden, Tucson AZ. Photo courtesy of Watershed Management Group.

Bioswales

Bioswales are linear stormwater management systems designed to convey runoff very slowly through a shallow sided, gently sloped vegetated swale. The swales are excavated and backfilled with drainage stone and engineered soils designed to retain stormwater and pollutants. Swales are vegetated with a mix of plants adapted to varying conditions, since standing water is not desirable within the bioswale and plants must adapt to occasional droughts. Bioswales are widely used around the U.S. to promote bioretention and water quality treatment in both urban conditions and along rural and suburban arterial roadways. Bioswales are an appropriate treatment for streets identified as Downtown Lifestyle, Downtown Essential, Principal Routes, and Residential.



Figure 4-31
Bioswale installed in Tucson, AZ. Photo courtesy of Watershed Management Group. From Green Infrastructure for Southwestern Neighborhoods. <http://www.watershedmg.org/green-streets>

Bioretention Cells

A bioretention cell (also called a rain garden) is a depressed area backfilled with a mix of drainage stone and sufficient organic soil to support surface vegetation. Bioretention cells can be designed to hold water for specified periods of time – usually less than 72 hours – to provide pollutant removal and runoff detention. Bioretention cells can have natural edges (often lined with stone to prevent erosion), or curbs as shown in the stormwater planter example. Bioretention cells and rain gardens often have an underdrain to encourage filtration and infiltration, especially in the type of clay soils common to the San Antonio region. Downtown Lifestyle, Downtown Essential, and Principal Routes are street types where bioretention cells may be appropriate.



Figure 4-32
Bioretention cell installed as retrofit, Tucson AZ. Note flush curb on three sides and surface graded against low curb wall to retain stormwater. Photo courtesy of Watershed Management Group. <http://www.watershedmg.org/green-streets>

Connected Tree Trenches

A stormwater tree trench is a linear system of trees connected by an underground infiltration structure. On the surface, a stormwater tree trench looks just like a series of street tree pits or tree grates. Under the sidewalk, an engineered system captures and retains the storm runoff for tree irrigation. A linear trench is dug along the sidewalk and lined with a permeable geotextile fabric. Perforated pipes are placed in the system and connected to the storm system for overflow. Additional vertical pipes may be placed in the trench for aeration or watering. The trenches are backfilled with specially engineered soils with high gravel content and planted with the desired mix of trees. If the capacity of this system is exceeded, stormwater runoff can bypass it entirely and flow into an existing street inlet. Tree trenches are appropriate for all street types except Residential.

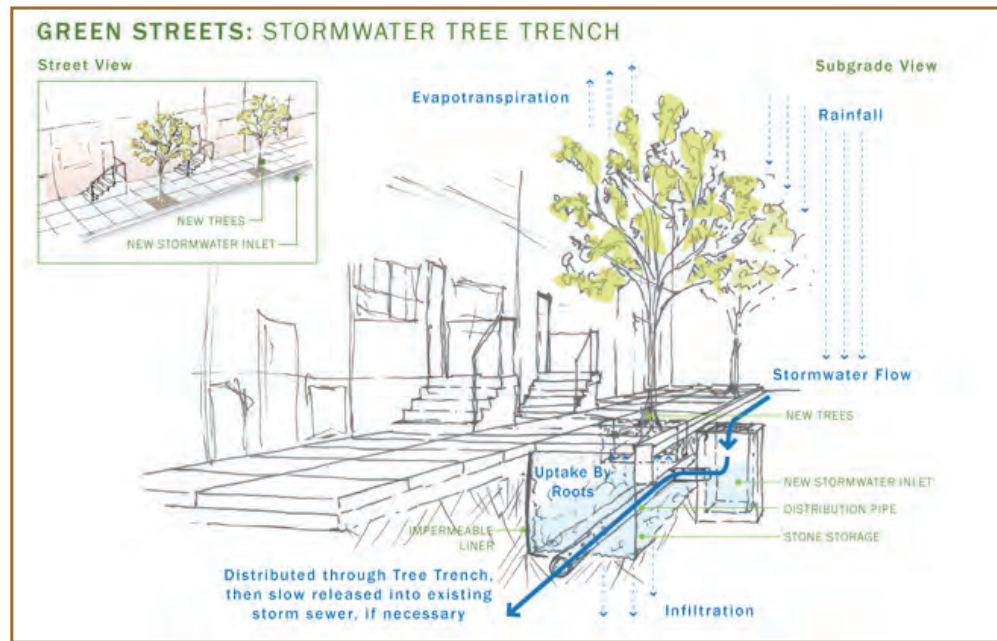


Figure 4-33
"Green Streets Stormwater Tree Trench"
 Drawing and Text from Philadelphia Water Department Website.

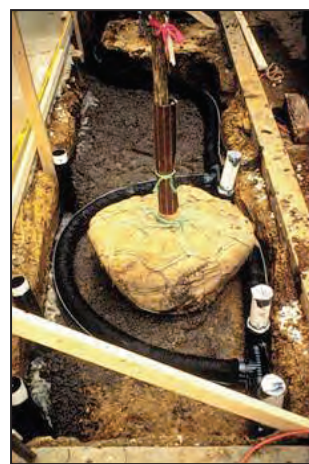


Figure 4-34
Tree trench installation
 Philadelphia PA. Photographs by Andropogon Associates Ltd.

Permeable Pavement

Permeable pavements have a porous pavement surface which allows the infiltration of some stormwater. The permeable pavements can reduce runoff by allowing stormwater to filter directly into the soil. **Figure 4-35** shows permeable concrete in use in Alamo Heights, Texas. Permeable pavement may be appropriate for Downtown Lifestyle, Downtown Essential, and Residential street types.



Figure 4-35
Porous concrete pavement installed at Alamo Heights Fire Station.

Stormwater Curb

Bumpout (Curb Extension)

A stormwater curb bumpout is a vegetated curb extension to collect and filter runoff. Runoff stored in the stormwater curb bumpout can directly infiltrate into the ground. These curb bumpouts may be built around inset parking and can also be used at crosswalks and for traffic calming. The curb extensions can be implemented on Downtown Lifestyle, Downtown Essential, and Residential street types.



Figure 4-37
Stormwater bumpout with warning bollards. Photo from Philadelphia Water Department website.

Figure 4-36
Curb bumpout for stormwater management, Tuscon AZ.
 Photo courtesy of Watershed Management Group. <http://www.watershedmg.org/green-streets>



Stormwater Planter / Filter Strips

Stormwater planters are installed along the road or sidewalk and can store and filter runoff. They are typically recessed below the pavement or sidewalk elevation to allow water to drain into and be stored in the planter. The planters can overflow into a storm drain to accommodate large rain events. For smaller rain events, the runoff can infiltrate directly into the ground from the planter. The soils and plants used in the stormwater planter should be selected based on their ability to filter, absorb, and drain the stormwater. Stormwater planters should be considered for all street types except Residential.



Figure 4-38
Stormwater planter, Portland OR.
 Source: http://www.phillywatersheds.org/what_were_doing/green_infrastructure/tools

Tree Box Filters / Drop Inlets with Tree Box

Tree box filters are in-ground planting boxes which can filter runoff. Because they can be used as the planting box for most locations where street trees are being planted, they can be applied to any street type.